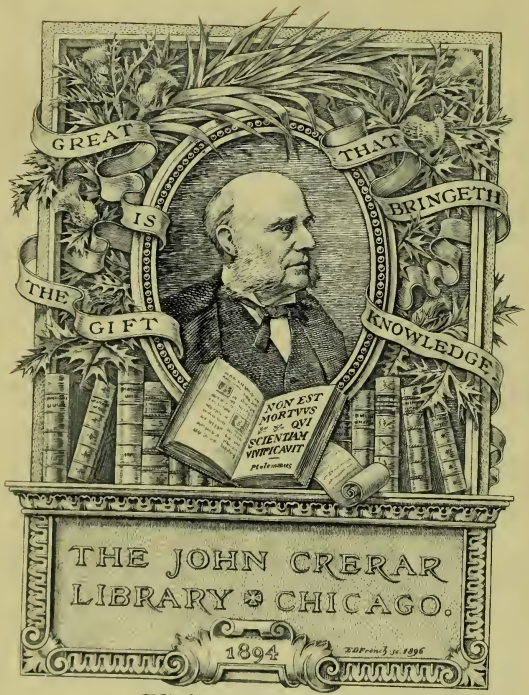

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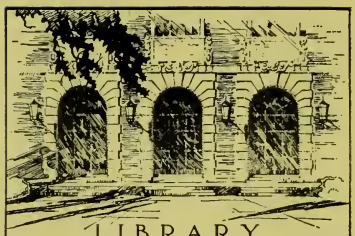

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CHICAGO
COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY
OF
THE UNIVERSITY OF ILLINOIS

1899-1900

TIME CARD, 1899-1900

EXERCISES.	JUNIOR			SENIOR		
	TUESDAY.	THURSDAY.	SATURDAY.	MONDAY.	WEDNESDAY.	FRIDAY.
Recitations, 9 to 10 A. M.	Chemistry.	Pharmacy. Mr. Irvine.	Materia Medica. Mr. Day.	Materia Medica. Mr. Day.	Pharmacy. Mr. Irvine.	Chemistry.
Lectures, 10 to 11 A. M. and 11 A. M. to 12 M.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Pharmacy. Prof. Hallberg.
	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.	Pharmacy. Prof. Hallberg.	Pharmacy. Prof. Hallberg.	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.
Laboratory Instruction,	1 to 5 P. M. Sections I and II. Chemistry. Prof. Puckner.	1 to 5 P. M. Sections III & IV. Chemistry. Prof. Puckner.	1 to 2 P. M. Section I. Pharmacognosy. Mr. Day and Mr. Gathercoal.	1 to 6 P. M. Chemistry. Prof. Puckner.	1 to 3 P. M. Section I. Microscopy. Mr. Day and Mr. Gathercoal.	1 to 2 P. M. Pharmacognosy. Mr. Day and Mr. Gathercoal.
	1 to 3 P. M. Section III. Microscopy. Mr. Day and Mr. Gathercoal.	1 to 3 P. M. Section I. Microscopy. Mr. Day and Mr. Gathercoal.	2 to 3 P. M. Section II. Pharmacognosy. Mr. Day and Mr. Gathercoal.		1 to 3 P. M. Section II. Dispensing. Prof. Hallberg and Mr. Irvine.	2 to 6 P. M. Pharmacy. Prof. Hallberg.
	1 to 3 P. M. Section IV. Dispensing. Prof. Hallberg and Mr. Irvine.	1 to 3 P. M. Section II. Dispensing. Prof. Hallberg and Mr. Irvine.	1 to 3 P. M. Sections III & IV. Pharmacy. Prof. Hallberg.		3 to 5 P. M. Section I. Dispensing. Prof. Hallberg and Mr. Irvine.	
Dispensing Laboratory opens January 4, 1900.	3 to 5 P. M. Section III. Dispensing. Prof. Hallberg and Mr. Irvine.	3 to 5 P. M. Section I. Dispensing. Prof. Hallberg and Mr. Irvine.	3 to 5 P. M. Sections I & II. Pharmacy. Prof. Hallberg.		3 to 5 P. M. Section II. Microscopy. Mr. Day and Mr. Gathercoal.	
	3 to 5 P. M. Section IV. Microscopy. Mr. Day and Mr. Gathercoal.	3 to 5 P. M. Section II. Microscopy. Mr. Day and Mr. Gathercoal.	3 to 4 P. M. Section III. Pharmacognosy. Mr. Day and Mr. Gathercoal.			
			4 to 5 P. M. Section IV. Pharmacognosy. Mr. Day and Mr. Gathercoal.			

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COLLEGE CALENDAR.

1899.

Tuesday,	Oct.	3,	Junior Lectures begin.
Wednesday,	"	4,	Senior Lectures begin.
Monday,	"	9,	Senior Laboratories open.
Tuesday,	"	10,	Junior Laboratories open.
Thursday,	Nov.	30,	Thanksgiving Day. Holiday.
Thursday,	Dec.	21,	Christmas Vacation begins.

1900.

Thursday,	Jan.	4,	Instruction resumed.
Monday,	Feb.	12,	Lincoln's Birthday. Holiday.
Thursday,	"	22,	Washington's Birthday. Holiday.
Friday,	April	13,	Senior Laboratories close.
Saturday,	"	14,	Junior Laboratories close.
Tuesday,	"	17,	Final Examination. Junior.
Thursday,	"	19,	Final Examination. Junior.
Friday,	"	20	Senior Lectures end.
Saturday,	"	21,	Final Examination. Junior.
Monday,	"	23,	Final Examination. Senior.
Tuesday,	"	24,	Final Examination. Senior.
Wednesday,	"	25,	Final Examination. Senior.
Tuesday,	May	1,	Fortieth Commencement.
Thursday,	"	10,	Botanical Excursion.
Thursday,	"	24,	Botanical Excursion.
Thursday,	June	7,	Botanical Excursion.
Thursday,	"	21,	Botanical Excursion.
Thursday,	July	12,	Botanical Excursion.

NOTE.—Botanical Excursions are free to students and graduates. Those desiring to attend these excursions will, at the close of the term, notify the Actuary who will, before each excursion, notify them as to the time and place.

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THE COLLEGE BUILDING.

FORTIETH ANNUAL ANNOUNCEMENT

CHICAGO
COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY

OF

THE UNIVERSITY OF ILLINOIS

465-467 STATE STREET, CHICAGO.

SESSION OF 1899-1900

CHICAGO
PUBLISHED BY THE UNIVERSITY

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EDMUND NORRIS GATHERCOAL, Ph. G., Assistant in Microscopy, 465 State Street, Chicago.

HISTORY.

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a building in which ample space for many years' growth was provided. The better accommodations gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry, and

vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the national government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the national government scrip for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign county donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The state legislature has from time to time appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $1,600,000. In 1890, by passage of a law supplementary to the act of 1862, the congress of the United States provided further appropriations, which now amount to $25,000 annually.

The trustees of the University are nominated in the state conventions, and are elected, together with other state officers, by vote of the citizens of Illinois.

ANNOUNCEMENT.

The fortieth annual course of instruction in the Chicago College of Pharmacy—the School of Pharmacy of the University of Illinois—will begin Tuesday, October 3, 1899, at ten o'clock in the morning.

The session will continue seven months, closing upon Tuesday, May 1, 1900, on which day the graduating exercises will be held.

AIMS AND SCOPE.

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education cannot be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due

consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies farther, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

THE COLLEGE BUILDING

is advantageously located upon State street, near Polk street, close to the center of the business district of the city. Cable-car lines pass the door, the elevated loop is within three blocks, and the principal depots not far distant, making the college easily accessible from all parts of the city and suburbs. Good board and lodging can be obtained in the vicinity of the school at reasonable rates.

The entire building is devoted to the education of pharmacists. It was designed by practical pharmacists for that purpose, and nothing which experience could suggest was overlooked at the time of its construction.

THE LECTURE HALLS

are two in number, both in amphitheatre form, well lighted and comfortably heated. The larger of these, known as Attfield Hall, has a seating capacity of three hundred and fifty. The smaller will seat half of that number.

Besides these halls the building contains three laboratories of ample size, an office and reading-room, storerooms, etc.

THE PHARMACEUTICAL AND CHEMICAL LABORATORY

is provided with work-stands for ninety-six students, and has four times this number of lock-drawers and of lock-cupboards; so that a class of three hundred and eighty-four may be divided into four sections, if necessary, and each individual have his apparatus under lock and key. Aside from the necessary kit furnished each student, the laboratory is provided with other chemical apparatus used to demonstrate the operations on a more extended scale. In connection with this room are a weighing-room, store-rooms, fume-chambers, drying-closets, etc.

Each work-stand is three feet long and is supplied with water, sink, gas, water-bath, sand-bath, percolators, stand, graduates, funnels, thermometers, specific gravity apparatus, etc.

THE DISPENSING LABORATORY

is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy.

This laboratory occupies the ground floor of the building proper, and contains one hundred and twenty feet of counters and shelf fixtures.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.

THE MICROSCOPICAL LABORATORY

is situated upon the second floor, and is adapted for classes of forty students. A compound microscope, magnifying from seventy-five to four hundred diameters, is provided for each person. The individual equipment consists of reagents and mounting media, slides, cover glasses, forceps, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, contained in half-gallon bottles, to which the students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of 553 specimens, embracing those official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the southern states and from the far west, may be found in this collection.

THE OFFICE,

in which all the business of the school is transacted by the Actuary and his assistant, is upon the second floor, and serves as a reading room. This room also contains the Library, which, in addition to the regular works of reference, embraces many rare books. New books are constantly being added as the various departments of science progress, and files of all the leading pharmaceutical journals are accessible for the students' perusal.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

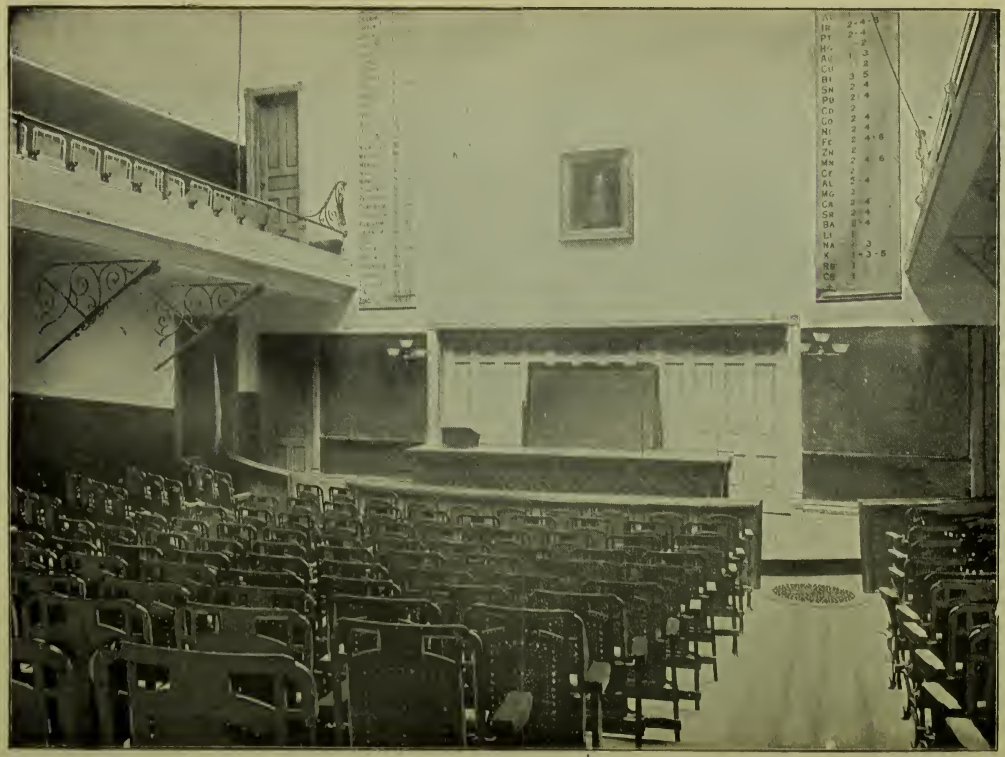
The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

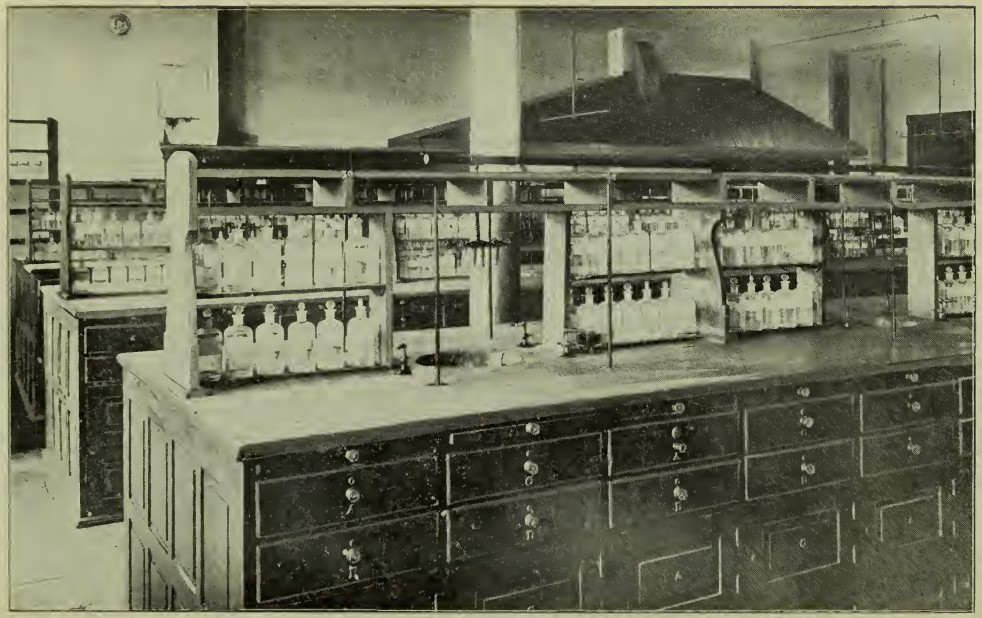
REQUIREMENTS FOR GRADUATION.

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two full courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this college, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.



ATTFIELD HALL—THE LARGER AUDITORIUM.



A SECTION OF THE PHARMACEUTICAL AND CHEMICAL LABORATORY.

VIEW OF THE DISPENSING LABORATORY.

VIEW OF THE MICROSCOPICAL LABORATORY.

COURSE OF INSTRUCTION.

The course comprises a Junior and a Senior Year each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from six to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR.

PHARMACY.

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with a thorough exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relations to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice.

Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids.

Solution, its phenomena, effects, and causes; related processes with their dependent separative operations; filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopœia.*—These are grouped according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America, are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Inorganic Pharmaceutical Chemistry.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director. Preparations typical of the official as well as unofficial classes are also made and their examination, testing, and valuation conducted so as to familiarize the student with all the requirements of pharmaceutical practice.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solu-

tions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

CHEMISTRY.

1. *Elementary Physics and Theoretical Chemistry.*—The course in physics is an introduction to the study of chemistry and the relationship existing between these two branches receives special attention. This course includes such consideration of the properties of matter and the manifestations of energy; heat, light, sound, and electricity, as is necessary for the comprehension and understanding of the application of these principles in the construction and use of the analytical balance, microscope, polariscope, spectroscope, galvanic batteries, and such electrical devices as the telephone, electric call bells, etc.

2. *General and Inorganic Chemistry.*—This course presents the theories and classification of chemistry; these being elucidated by the consideration of a few typical elements and their compounds, after which the elements and their inorganic compounds are studied in detail. Concurrently with the lectures upon this subject a number of typical compounds are prepared in the laboratory and their properties and reactions studied.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

MATERIA MEDICA AND BOTANY.

This department embraces Materia Medica, Botany, Vegetable Histology, Microscopy, and Pharmacognosy.

1. *Botany.*—No science is advancing more rapidly or becoming of greater utility than botany; the aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification. While it is not the aim to graduate professional botanists, the foundation, as laid in this school, enables one so inclined to build to the highest degree

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy,—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. Official drugs receive the greater share of attention, but officinal substances are duly considered in their proper places. Most of the articles used in medicine are derived from the vegetable kingdom and are treated in their proper botanical order. Each drug is considered with reference to official requirements; concise descriptions of drug-yielding plants are given, together with

accurate illustrations, habitats, commercial history, alkaloidal and other constituents, therapeutic properties, official preparations and doses.

4. *Pharmacognosy.*—This study consists in the examination of vegetable drugs in the laboratory, following their consideration in the lectures. Typical specimens of these drugs are given for recognition and description, each characteristic feature being duly pointed out.

Review exercises in identification are held at regular intervals.

SENIOR YEAR.

PHARMACY.

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities indicating their res-

pective therapeutic uses and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances and Compounds.*—These are classified according to their origin, production or derivation, and treated with especial reference to their preparation and purification, their tests for identity, purity, and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starch, sugars, alcohols, and acids and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gumresins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The classification of crude drugs according to their constituents, their unofficial preparations, together with the animal products and derivatives; the course ends with a consideration of the ferments and their functions; the serums and their value as pharmaceutical and medicinal agents.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilities, as exemplified from the exercises in dispensing, and bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories,

and plasters; as well as the valuation of the more important alkaloidal extractive preparations, tinctures, extracts, and fluid extracts. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary. The end of the term is devoted to the study of the assay processes of the pharmacopœia, the examination of pharmaceutical preparations and the construction of formulas for unofficial preparations.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

CHEMISTRY.

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 17.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which the student undertakes the quantitative estimation of the more important acids and bases. Later he determines the purity and strength of various pharmaceutical chemicals.

During this course the student becomes familiar with all of the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of the general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine. In the laboratory a number of typical organic compounds are prepared and examined.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

MATERIA MEDICA.

5. *Materia Medica.*—This course begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various orders and families of the entire vegetable kingdom. Every official article is studied and attention is called to the important officinals.

6. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year, this laboratory study closely following the lectures on Materia Medica.

7. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the microscope, the optical principles involved in its construction, the function of each part, and the laws of refraction

and reflection. Instruction and practice are given in the operations of lighting, focussing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. All the various accessories, including such attachments as the polariscope, spectroscope, etc., are illustrated and explained.

8. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible such official articles are selected for study as are typical of the various plant organs. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

GENERAL INFORMATION.

TEXT BOOKS AND WORKS OF REFERENCE.

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

PHYSICS.—Gage's Elements of Physics.

CHEMISTRY.—*Sadtler and Trimble's Pharmaceutical Chemistry*, *Muter's Analytical Chemistry*, Bernthsen's Organic Chemistry, Prescott and Johnson's Qualitative Analysis, Schimpf's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica*, *Gray's School and Field Botany*, Bastin's College Botany, *Gage's Microscopical Methods.*

PHARMACY.—*The Pharmacopœia*, *United States or National Dispensatory*, Hallberg's Lectures on Pharmacy, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Dispensing.

Some of these books are used only in the Junior year, some only in the Senior year and others during both years.

PRIZES.

TRUSTEES' MEDALS.—To the junior student in the department of Chemistry having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Materia Medica having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Pharmacy

having the highest final average, provided it is ninety-six or over, will be awarded a gold medal. It is expressly stipulated that no student shall receive more than one medal.

ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

BIROTH MICROSCOPE.—A member of the College offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done by him are sufficiently meritorious. Attendance, attention and general neatness will be taken into account in awarding this prize.

FEES AND EXPENSES.

No fee is required for matriculation.

TUITION FEES.—The tuition fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College without expense to the student, but

breakage or damage to apparatus must be paid for, and for this reason each junior and senior student is required to deposit five dollars with the Actuary. This deposit, or such portion of it as is not required for the specified purpose, will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging.—Good board and lodging, within walking distance of the college, can be had for from $4 to $6 per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

SELECTION OF SEATS.

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll it is necessary to fill out the matriculation blank and forward to the Actuary with a payment upon tuition of not less than five dollars. It is of advantage to students to matriculate early.

OPPORTUNITIES FOR EMPLOYMENT.

While the lectures and the laboratory practice, together with the required study, provide sufficient work to occupy all of the time of the average student yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

REGISTRATION IN THE STATE.

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized. The diploma of the College is, however, recognized in lieu of examination for registration in about twenty states of the Union.

For further information or for matriculation blank, address

W. B. DAY, *Actuary*,
465 State Street, Chicago, Ill.

Or, W. L. PILLSBURY, *Registrar*
Urbana, Ill.

GRADUATES, 1899.

DEGREE OF GRADUATE IN PHARMACY.

George Edwin Arnold,
Charles Walter Bartells,
Carl August Bernhardt Biese,
Horatio Thomas Addis Brady,
William John Buchholz,
John Samuel Chism,
Adolph Dauber,
Cyrus Justin Davis,
August Eipper,
Louis Albert Elisburg,
George Christopher Goeppner,
Grove Greene,
Frank Preston Haeseler,
Albert Henry Heidbreder,
Joseph Anthony Hellmuth,
Charles Herbold,
Alva Andrew Johnson,
Walter August Jungk,
John Wright Martin,
Zebina Earle Marvin,
Alonzo Edward Meinzer,
Albert Michelmann,
Jay Howard Mitchell,
Howard Arthur Nickerson,
Luther Hansford Phipps,
Emil Emil Pick,
Frank Joseph Pokorney,
Walter Thomas Price,
William Conrad Reuter,
Andrew Jackson Robson,
Charles Howard Schimelfenig,
Jacob Schrodt,
Daniel Peter Seibert,
William Edward Snyder,
Isa Belle Sturges,
Harold Gideon Swanson,
George Owen Taylor,
Raymond Eugene Taylor
DeWitt Snow Vannatta,
Frederick Wilhelm Woelz,
William Zerbst.

CERTIFICATES.

The following Senior students received certificates of having finished the course successfully, and will receive the degree when the required age and practical experience are attained.

Moses Barnett,
Margaret McClintock Gray,
William Leonard Jansen,
John Whitaker Lawrence,
Boyden Nims,
Carl John Samuelson,
Frank George Douglas Smith,
Robert Clyde Smith.

HONORS AND PRIZES.

CLASS HONORS FOR AN AVERAGE OF NINETY PER CENT. OR ABOVE.

Senior Class.

Horatio Thomas Addis Brady,
William John Buchholz,
Walter August Jungk,
Frederick Wilhelm Woelz,
Adolph Dauber,
Harold Gideon Swanson,
Joseph Anthony Hellmuth,
Charles Walter Bartells,
Robert Clyde Smith.

Junior Class.

Walter Holderread,
Charlotte Elizabeth Stimson,
William Rice Graham,
Jacob Charles Welcome,
Bird Cleo Rounds,
George Arthur Kiedaisch,
Alvernon Frank Warhanik,
Clarence Lorenzo James,
Louis Schreiber,
Emile Silver,
Roscius Wright Freeman,
Moses Reuben Price.

PRIZES.

Senior Class.

Horatio Thomas Addis Brady -	Alumni Medal.
Joseph Anthony Hellmuth - -	Biroth Microscope.

Junior Class.

Walter Holderread - - -	Chemistry Medal.
Charlotte Elizabeth Stimson - -	Materia Medica Medal.
William Rice Graham - -	Pharmacy Medal.

LIST OF STUDENTS.

Session of 1898–9.

SENIORS.

Arnold, George Edward.....Watseka.
Barnett, Moses .....Evansville, Ind.
Bartells, Charles Walter.....Camp Point.
Biese, Carl August Biese .....Chattanooga, Tenn.
Brady, Horatio Thomas Addis.....Chicago.
Buchholz, William John.....Hooper, Neb.
Chism, John Samuel.....Argonia, Kas
Danden, Raymond von.....Chicago.
Dauber, Adolph..... Peru.
Davis, Cyrus Justin .....North Chicago.
Davis, Leonard Watkin.....Topeka, Kas.
Eipper, August.....Coe.
Elisburg, Louis Albert.....Chicago.
Fahrner, Pius Michael.....Joliet.
Gillette, Arthur.....Hudson, Mich.
Goeppner, George Christopher.....Chicago.
Gray, Margaret McClintock.....Chicago.
Greene, Grove.....Marshall, Mich.
Haeseler, Frank Preston.....Mt. Vernon, Ia.
Heidbreder, Albert Henry.....Quincy.
Hellmuth, Joseph Anthony .....Chicago.
Herbold, Charles.....Peru.
Jansen, William Leonard.....Quincy.
Jewett, Harvey Claude.....Oregon.
Johnson, Alva Andrew.....Kilbourne, Wis.
Joubert, Louis Joseph.....Kankakee.
Jungk, Walter August .....Chicago.
Lawrence, John Whitaker.....Johnstown, Pa.
Martin, John Wright.....Wrightsville, Ga.
Marvin, Zebina Earle .....Coldwater, Mich.
Meinzer, Alonzo Edward.....Sioux City, Ia.
Michelmann, Albert.....Quincy.
Mitchell, Jay Howard.....Chicago.
Mortland, Arthur Caldwell.....Edgerton, Ohio.
Munsterman, Henry Albert.....Chicago.
Nickerson, Howard Arthur..... Philadelphia, Pa.
Nims, Boyden.....Mt. Holly, N. C.
Phipps, Luther Hansford.....Chicago.
Pick, Emil Emil.....Chicago.

Pokorney, Frank Joseph.....Chicago.
Price, Walter Thomas.....Honey Grove, Texas.
Reuter, William Conrad.....Chicago.
Robson, Andrew Jackson.....Joliet.
Samuelson, Carl John.....Buda.
Schrodt, Jacob.....Mt. Carmel.
Schimelfenig, Charles Howard.....Chicago.
Seibert, Daniel Peter.....Ashley.
Smith, Frank George Douglas,.....Grand Forks, N. D.
Smith, Robert Clyde.....Oak Park.
Snyder, William Edward.....Chicago.
Sturges, Isa Belle.....Salt Lake City, Utah
Swanson, Harold Gideon.....Chicago.
Taylor, George Owen.....St. Louis, Mich.
Taylor, Raymond Eugene.....Chicago.
Vannatta, DeWitt Snow.....Galesburg.
Woelz, Frederick Wilhelm.....Green Bay, Wis.
Zerbst, William.....Peoria.

JUNIORS.

Alexa, Ludwik Frank.....Chicago.
Arnold, Almond Clifford.....Perrinton, Mich.
Ballantine, Stewart.....Chicago.
Bank, Harry Lawrence Marie.....Chicago.
Banker, Edward Urias.....Aurora.
Batt, Herman.....Chicago.
Belmore, William Thomas.....Highwood.
Bilz, Michael Aloysius.....Chicago.
Bond, George Leslie.....Galena.
Carmichael, Lewis Eber.....Rockford.
Caron, Walter.....Chicago.
Cholewinski, John Peter.....Chicago.
Dewitz, Otto John.....Chicago.
Dickey, Lily A.....Chicago.
Diekelmann, Bernard Frederick Herman.....Chicago.
Duffy, Michael Henry.....Spring Valley.
Fawcett, Jacob Theodore.....Princeton.
Fortin, William Henry.....Chicago.
Frain, Will Irvin.....Rochester, Ind.
Freburg, Amel Ernest.....Woodhull.
Freeman, Roscius Wright.....River Falls, Wis
Fulton, Peter McMullen.....Stockton.
Goodman, Lewis.....Chicago.
Graham, William Rice.....Carlinville.
Gregg, Maude Alma.....Attica, Kas.
Hansen, Christian.....Chicago.
Hart, Benjamin Thomas.....Camp Point.
Hobart, Mary Florence.....Gilman.

Hobart, Maud Finley.....Gilman.
Holderread, Walter.....Litchfield.
Hollstein, Henry Charles.....Waukegan.
Ives, John Smith.....Amboy.
Jackola, Abraham Arthur.....Calumet, Mich.
James, Clarence Lorenzo.....Herscher.
Jaus, Albert.....Chicago.
Johnson, John August.....Gile, Wis.
Kenney, Cornelius Edward.....Cedarburg, Wis.
Kiedaisch, George Arthur.....Keokuk, Ia.
Klaverweiden, John Arnold.....Chicago-
Kreml, Frank Joseph.....Chicago.
Leemon, Charles Nathan.....Hoopeston.
Lestina, Joseph Matthew.....Chicago.
Letz, John.....Menasha, Wis.
Loan, James Michael.....Amboy.
Lofstrom, Frank Louis.....Chicago.
Machler, William George.....Chicago.
Mayer, Edward.....Chicago.
McGill, Charles Randolph.....Chicago.
McKinnie, Guy Leonard.....Evanston.
Mensching, William.....Chicago.
Monk, Louis.....Chicago.
Nechvatal, John Joseph.....Chicago.
Niemeyer, John.....Elkader, Ia.
Parker, Charles Wilbur.....Napoleon, Mich.
Paul, George Henry.....Augusta, Wis.
Peel, Ernest.....Salina, Kas.
Pettitt, Herbert Leroy.....Rock Falls.
Pfaff, Fred Lewis.....Centralia.
Price, Moses Reuben.....Chicago.
Randack, Frank Joseph.....Chicago.
Reichmann, Albert.....Joliet.
Richmond, John Michael.....Chicago.
Rodenhauser, William Robert.....Bloomington.
Rounds, Bird Cleo.....Chicago.
Safranek, Edward Jacob.....Chicago.
Salmon, Fred.....Burlington, Ia
Samuels, John Jacob.....Chicago.
Scanlan, Walter Samuel.....Chicago.
Schmidt, Charles Henry.....Chicago.
Schmidt, Einar.....Chicago.
Schreiber, Louis.....Columbus, Neb.
Scott, Paul Herman.....Chicago.
Sees, Guy Deforest.....Grand Rapids, Mich
Seibert, Walter George.....Ashley.
Seltzer, Bert.....Manhattan.
Siebel, Ewald Hugo.....Chicago.
Silver, Emile.....Chicago.
Simons, Elden M.....Marcellus, Mich.

Sneyd, Joseph Edward.....Chatsworth.
Solomon, Leo Kleinert.....Chicago.
Spangler, Newton Light.....Lebanon, Pa.
Stamm, Wenzel Alfred.....Milwaukee, Wis.
Stimson, Charlotte Elizabeth.....Tiskilwa.
Susa, Joseph James.....Chicago.
Tether, Theodore Mason.....Howell, Mich.
Trout, William.....Decatur, Ind.
Valbracht, Harry Daniel.....Chicago.
Vincent, Philip Darius.....Mason City, Ia.
Ware, Frank Munson.....Jerseyville.
Warhanik, Alvernon Frank.....Chicago.
Webster, Charles Jeremiah.....Canton.
Weible, Alfred Tennyson.....Malden.
Welcome, Jacob Charles.....Burns, Ore.
Wernli, Louis Samuel.....La Mars, Ia.
Weston, Willard.....Chicago.
Wulz, August Oscar.....Quincy.
Young, Wellington Wellesley.....Toledo, Ia.

SPECIAL STUDENTS.

Fitzgerald, William Lyndes.....Rochester, Ind.
Geerlings, Isaac.....Milwaukee, Wis.
Xelowski, Thaddeus Zigismund, Ph. G.....Chicago.

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CHICAGO
COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY
OF
THE UNIVERSITY OF ILLINOIS

1900-1901.

TIME CARD, 1900-1901.

EXERCISES.	JUNIOR.			SENIOR.		
	TUESDAY.	THURSDAY.	SATURDAY.	MONDAY.	WEDNESDAY.	FRIDAY.
Recitations, 9 to 10 A. M.	Chemistry.	Pharmacy. Mr. Irvine.	Materia Medica. Prof. Day.	Materia Medica. Prof. Day.	Pharmacy. Mr. Irvine.	Chemistry.
Lectures, 10 to 11 A. M. and 11 A. M. to 12 M.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner,	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Pharmacy. Prof. Hallberg.
	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.	Pharmacy. Prof. Hallberg.	Pharmacy. Prof. Hallberg.	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.
Laboratory Instruction,	1 to 5 P. M. Sections I and II. Chemistry. Prof. Puckner.	1 to 5 P. M. Sections III. & IV. Chemistry. Prof. Puckner.	1 to 2 P. M. Section I. Pharmacognosy. Prof. Day and Mr. Gathercoal.	1 to 6 P. M. Chemistry. Prof. Puckner.	1 to 3 P. M. Section I. Microscopy, Prof. Day and Mr. Gathercoal.	1 to 2 P. M. Pharmacognosy. Prof. Day and Mr. Gathercoal.
	1 to 3 P. M. Section III. Microscopy. Prof. Day and Mr. Gathercoal.	1 to 3 P. M. Section I. Microscopy. Prof. Day and Mr. Gathercoal.	2 to 3 P. M. Section II. Pharmacognosy. Prof. Day and Mr. Gathercoal.		1 to 3 P. M. Section II. Dispensing. Prof. Hallberg and Mr. Irvine.	2 to 6 P. M. Pharmacy. Prof. Hallberg.
	1 to 3 P. M. Section IV. Dispensing. Prof. Hallberg and Mr. Irvine.	1 to 3 P. M. Section II. Dispensing. Prof. Hallberg. and Mr. Irvine.	1 to 3 P. M. Sections III & IV. Pharmacy. Prof. Hallberg.		3 to 5 P. M. Section I. Dispensing. Prof. Hallberg and Mr. Irvine.	
Dispensing Laboratory opens January 3, 1900.	3 to 5 P. M. Section III. Dispensing. Prof. Hallberg and Mr. Irvine.	3 to 5 P. M. Section I. Dispensing. Prof. Hallberg. and Mr. Irvine.	3 to 5 P. M. Sections I & II. Pharmacy. Prof. Hallberg.			
			3 to 4 P. M. Section III. Pharmacognosy. Prof. Day and Mr. Gathercoal.			
	3 to 5 P. M. Section IV. Microscopy. Prof. Day and Mr. Gathercoal.	3 to 5 P. M. Section II. Microscopy. Prof Day and Mr. Gathercoal.	4 to 5 P. M. Section IV. Pharmacognosy. Prof. Day and Mr. Gathercoal.		3 to 5 P. M. Section II. Microscopy. Prof. Day and Mr. Gathercoal.	

COLLEGE CALENDAR.

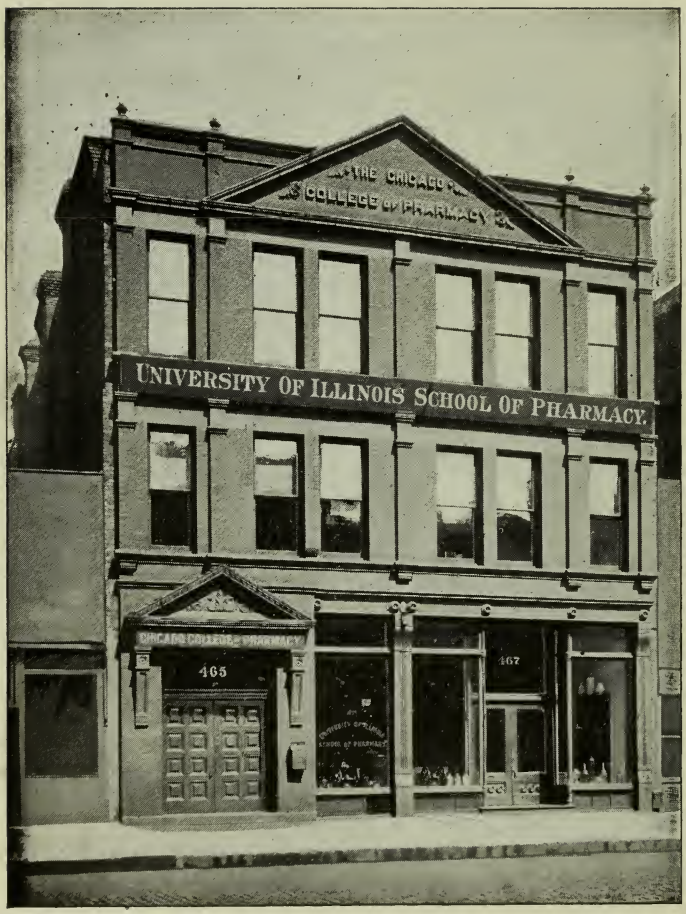
1900.

Tuesday,	Sept.	25.	Junior Lectures begin.
Wednesday,	"	26.	Senior Lectures begin.
Monday,	Oct.	1.	Senior Laboratories open.
Tuesday,	"	2.	Junior Laboratories open.
Thursday,	Nov.	29,	Thanksgiving Day. Holiday.
Thursday,	Dec.	20,	Christmas Vacation begins.

1901.

Thursday,	Jan.	3.	Instruction resumed.
Tuesday,	Feb.	12.	Lincoln's Birthday. Holiday.
Friday,	"	22,	Washington's Birthday. Holiday.
Friday,	April	12,	Senior Laboratories and Lectures close.
Saturday,	"	13.	Junior Laboratories and Lectures close.
Monday,	"	15,	Final Examinations.
Tuesday,	"	16,	Final Examinations.
Wednesday,	"	17,	Final Examinations.
Thursday,	"	25,	Forty-first Commencement.
Thursday,	May	2,	Botanical Excursion.
Thursday,	"	16,	Botanical Excursion.
Thursday,	June	6,	Botanical Excursion.
Thursday,	"	20,	Botanical Excursion.
Thursday,	"	27,	Botanical Excursion.

NOTE.—Botanical Excursions are free to students and graduates. Those desiring to attend these excursions will, at the close of the term, notify the Actuary who will, before each excursion, notify them as to the time and place.



THE COLLEGE BUILDING.

FORTY-FIRST ANNUAL ANNOUNCEMENT

CHICAGO
COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY

OF

THE UNIVERSITY OF ILLINOIS

465-467 STATE STREET, CHICAGO.

SESSION OF 1900-1901

CHICAGO
PUBLISHED BY THE UNIVERSITY

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WALTER AUGUST JUNGK, Ph. G., Assistant in Chemistry, 465 State Street, Chicago.

HISTORY.

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a building in which ample space for many years' growth was provided. The better accommodations gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry, and

vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the national government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the national government scrip for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign county donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The state legislature has from time to time appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $1,600,000. In 1890, by passage of a law supplementary to the act of 1862, the congress of the United States provided further appropriations, which now amount to $25,000 annually.

The trustees of the University are nominated in the state conventions, and are elected, together with other state officers, by vote of the citizens of Illinois.

ANNOUNCEMENT.

The forty-first annual course of instruction in the Chicago College of Pharmacy—the School of Pharmacy of the University of Illinois—will begin Tuesday, September 25, 1900, at ten o'clock in the morning.

The session will continue seven months, closing upon Thursday, April 25, 1901, on which day the graduating exercises will be held.

AIMS AND SCOPE.

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education cannot be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due

consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

THE COLLEGE BUILDING

is advantageously located upon State street, near Polk street, close to the center of the business district of the city. Cable-car lines pass the door, the elevated loop is within three blocks, and the principal depots not far distant, making the college easily accessible from all parts of the city and suburbs. Good board and lodging can be obtained in the vicinity of the school at reasonable rates.

The entire building is devoted to the education of pharmacists. It was designed by practical pharmacists for that purpose, and nothing which experience could suggest was overlooked at the time of its construction.

THE LECTURE HALLS

are two in number, both in amphitheatre form, well lighted and comfortably heated. The larger of these, known as Attfield Hall, has a seating capacity of three hundred and fifty. The smaller will seat half of that number.

Besides these halls the building contains three laboratories of ample size, an office and reading-room, storerooms, etc.

THE PHARMACEUTICAL AND CHEMICAL LABORATORY

is provided with work-stands for ninety-six students, and has four times this number of lock-drawers and of lock-cupboards; so that a class of three hundred and eighty-four may be divided into four sections, if necessary, and each individual have his apparatus under lock and key. Aside from the necessary kit furnished each student, the laboratory is provided with other chemical apparatus used to demonstrate the operations on a more extended scale. In connection with this room are a weighing-room, store-rooms, fume-chambers, drying-closets, etc.

Each work-stand is three feet long and is supplied with water, sink, gas, water-bath, sand-bath, percolators, stand, graduates, funnels, thermometers, specific gravity apparatus, etc.

THE DISPENSING LABORATORY

is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy.

This laboratory occupies the ground floor of the building proper, and contains one hundred and twenty feet of counters and shelf fixtures.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.

THE MICROSCOPICAL LABORATORY

is situated upon the second floor, and is adapted for classes of forty students. A compound microscope, magnifying from seventy-five to four hundred diameters, is provided for each person. The individual equipment consists of reagents and mounting media, slides, cover glasses, forceps, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, contained in half-gallon bottles, to which the students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of 553 specimens, embracing those official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the southern states and from the far west, may be found in this collection.

THE OFFICE,

in which all the business of the school is transacted by the Actuary and his assistant, is upon the second floor, and serves as a reading room. This room also contains the Library, which, in addition to the regular works of reference, embraces many rare books. New books are constantly being added as the various departments of science progress, and files of all the leading pharmaceutical journals are accessible for the students' perusal.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

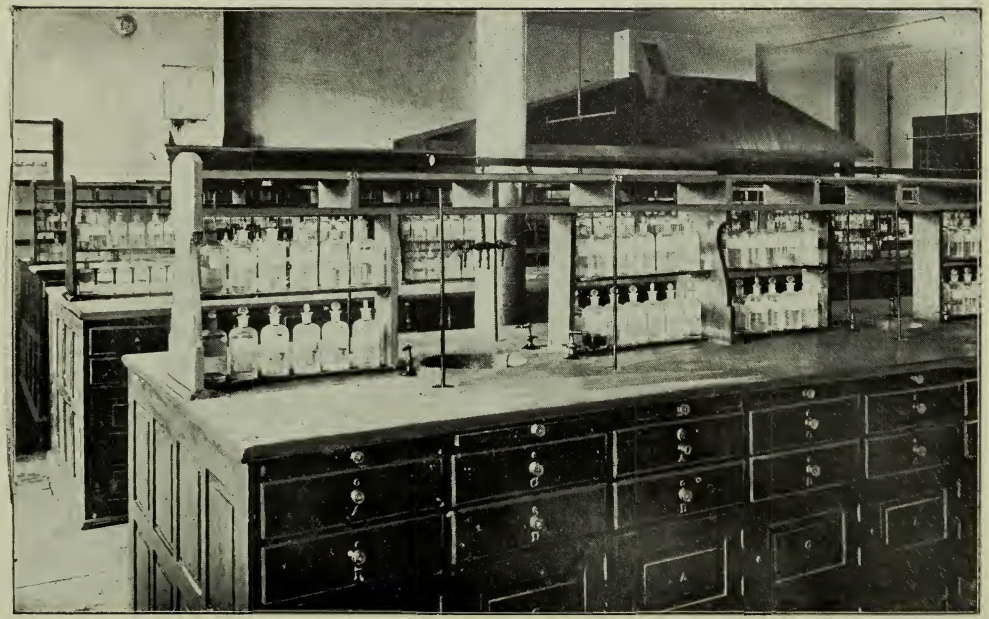
Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

REQUIREMENTS FOR GRADUATION.

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two full courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this college, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

ATTFIELD HALL—THE LARGER AUDITORIUM



A SECTION OF THE PHARMACEUTICAL AND CHEMICAL LABORATORY.

VIEW OF THE DISPENSING LABORATORY.

VIEW OF THE MICROSCOPICAL LABORATORY

COURSE OF INSTRUCTION.

The course comprises a Junior and a Senior Year each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from six to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR.

PHARMACY.

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with a thorough exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relations to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice.

Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids.

Solution, its phenomena, effects, and causes; related processes with their dependent separative operations; filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopœia.*—These are grouped according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America, are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Inorganic Pharmaceutical Chemistry.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous com-

pounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

CHEMISTRY.

1. *Elementary Physics and Theoretical Chemistry.*—The course in physics is an introduction to the study of chemistry and the relationship existing between these two branches receives special attention. This course includes such consideration of the properties of matter and the manifestations of energy; heat, light, sound, and electricity, as is necessary for the comprehension and understanding of the application of these principles in the construction and use of the analytical balance, microscope, polariscope, spectroscope, galvanic batteries, and such electrical devices as the telephone, electric call bells, etc.

2. *General and Inorganic Chemistry.*—This course presents the theories and classification of chemistry; these being elucidated by the consideration of a few typical elements and their compounds, after which the elements and their inorganic compounds are studied in detail. Concurrently with the lectures upon this subject a number of typical elements and compounds are prepared in the laboratory and their properties and reactions studied.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

MATERIA MEDICA AND BOTANY.

This department embraces Materia Medica, Botany, Vegetable Histology, Microscopy, Pharmacognosy and Physiology

1. *Botany.*—No science is advancing more rapidly or becoming of greater utility than botany; the aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification. While it is not the aim to graduate professional botanists, the foundation, as laid in this school, enables one so inclined to build to the highest degree

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy,—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. Official drugs receive the greater share of attention, but officinal substances are duly considered in their proper places. Most of the articles used in medicine are derived from the vegetable kingdom and are treated in their proper botanical order. Each drug is considered with reference to official requirements; concise descriptions of drug-yielding plants are given, together with

accurate illustrations, habitats, commercial history, alkaloidal and other constituents, therapeutic properties, official preparations and doses.

4. *Pharmacognosy.*—This study consists in the examination of vegetable drugs in the laboratory, following their consideration in the lectures. Typical specimens of these drugs are given for recognition and description, each characteristic feature being duly pointed out.

Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum of this college.

In this course, the peculiar needs of the student are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are referred to in such a way that the pharmaceutical student may read his Dispensatory understandingly and may become a safe coadjutor to the physician. Practical instruction is given in caring for emergency cases until medical or surgical help arrives.

SENIOR YEAR.

PHARMACY.

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities indicating their respective therapeutic uses and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances and Compounds.*—These are classified according to their origin, production or derivation, and treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starch, sugars, alcohols and acids and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gumresins, balsams, and exudation products generally, the

acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The classification of crude drugs according to their constituents, their unofficial preparations, together with the animal products and derivatives; the course ends with a consideration of the ferments and their functions; the serums and their value as pharmaceutical and medicinal agents.

In the laboratory, a number of typical organic compounds are prepared and examined.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilities, as exemplified from the exercises in dispensing, and bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as the valuation of the more important alkaloidal extractive preparations, tinctures, extracts, and fluid extracts. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

CHEMISTRY.

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 17.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which the student undertakes the quantitative estimation of the more important acids and bases. Later he determines the purity and strength of various pharmaceutical chemicals. During this course the student becomes familiar with all of the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of the general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

MATERIA MEDICA.

5. *Materia Medica.*—This course begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various orders and families of the entire vegetable kingdom. Every official article is studied and attention is called to the important officinals.

Toward the close of the course, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by, and the antidotal treatment for, the principal toxic drugs.

6. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year, this laboratory study closely following the lectures on Materia Medica.

7. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the microscope, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focussing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. All the various accessories, including such attachments as the polariscope, spectroscope, etc., are illustrated and explained.

8. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible such official articles are selected for study as are typical of the various plant organs. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

GENERAL INFORMATION.

TEXT BOOKS AND WORKS OF REFERENCE.

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

PHYSICS.—Gage's Elements of Physics.

CHEMISTRY.—*Sadtler and Trimble's Pharmaceutical Chemistry*, *Muter's Analytical Chemistry*, Bernthsen's Organic Chemistry, Prescott and Johnson's Qualitative Analysis, Schimpf's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica*, *Gray's School and Field Botany*, Bastin's College Botany, *Gage's Microscopical Methods. Kimber's Physiology.*

PHARMACY.—*The Pharmacopœia*, *United States or National Dispensatory*, Hallberg's Lectures on Pharmacy, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Dispensing.

Some of these books are used only in the Junior year, some only in the Senior year and others during both years.

PRIZES.

TRUSTEES' MEDALS.—To the junior student in the department of Chemistry having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Materia Medica having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Pharmacy

having the highest final average, provided it is ninety-six or over, will be awarded a gold medal. It is expressly stipulated that no student shall receive more than one medal.

ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

BIROTH MICROSCOPE.—A member of the College offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done by him are sufficiently meritorious. Attendance, attention and general neatness will be taken into account in awarding this prize.

FEES AND EXPENSES.

No fee is required for matriculation.

TUITION FEES.—The tuition fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College without expense to the student, but

breakage or damage to apparatus must be paid for, and for this reason each junior and senior student is required to deposit five dollars with the Actuary. This deposit, or such portion of it as is not required for the specified purpose, will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging.—Good board and lodging, within walking distance of the college, can be had for from $4 to $6 per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

SELECTION OF SEATS.

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll it is necessary to fill out the matriculation blank and forward to the Actuary with a payment upon tuition of not less than five dollars. It is of advantage to students to matriculate early.

OPPORTUNITIES FOR EMPLOYMENT.

While the lectures and the laboratory practice, together with the required study, provide sufficient work to occupy all of the time of the average student yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

REGISTRATION IN THE STATE.

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized. The diploma of the College is, however, recognized in lieu of examination for registration in about twenty states of the Union.

For further information or for matriculation blank, address

W. B. Day, *Actuary*,
465 State Street, Chicago, Ill.

Or, W. L. Pillsbury, *Registrar*
Urbana, Ill.

GRADUATES, 1900.

DEGREE OF GRADUATE IN PHARMACY.

John William Alexander,	*Harvey.*
Almond Clifford Arnold,	*Perrinton, Michigan.*
Rudolph Sigfried Boehm,	*Chicago.*
Walter Caron,	*Chicago.*
William Henry Daley,	*Nashua, Iowa.*
Raymond August von Danden,	*Chicago.*
Leonard Watkins Davis,	*Topeka, Kansas.*
T. Guthred Drake,	*Prairieton, Indiana.*
Fred Henry Drallmeier,	*Quincy.*
Irving Lewis Emerson,	*Sauk Center, Minnesota.*
Arthur S. Gillette,	*Hudson, Michigan.*
William Rice Graham,	*Carlinville.*
Walter Holderread,	*Litchfield.*
Gilbert James Houseman,	*Chicago.*
Abraham Arthur Jackola,	*Calumet, Michigan.*
Clarence Lorenzo James,	*Herscher.*
John August Johnson,	*Gile, Wisconsin.*
George Arthur Kiedaisch,	*Keokuk, Iowa.*
Anton Kucera,	*Hazelhurst, Wisconsin.*
Joseph Matthew Lestina	*Chicago.*
George Henry Paul,	*Augusta, Wisconsin.*
Fred Horace Priest,	*Hastings, Iowa.*
William Ernest Rose,	*Harrisburg.*
Louis Schreiber,	*Columbus, Nebraska.*
Leo K. Solomon,	*Chicago,*
Alfred Wenzel Stamm,	*Milwaukee, Wisconsin.*
George Edward Steyer,	*Chicago.*
Charlotte Elizabeth Stimson,	*Tiskilwa.*
Alfred Reuben Utt,	*Pittsfield.*
Philip Darius Vincent,	*Mason City, Iowa.*
Alvernon Frank Warhanik,	*Chicago.*
Charles Jeremiah Webster,	*Canton.*
Alfred Tennyson Weibel,	*Malden.*
Walter Henry Wellman	*Quincy.*
Moses Barnett (Class of '99)	*Evansville, Indiana.*
William Leonard Jansen (Class of '99)	*Quincy.*
John Whitaker Lawrence (Class of '99)	*Johnstown, Pennsylvania.*

CERTIFICATES.

The following Senior students received certificates of having finished the course successfully, and will receive the degree when the required age and practical experience are attained.

Roscius Wright Freeman,	*River Falls, Wisconsin.*
Peter McMullen Fulton,	*Stockton.*
George Smith Ives,	*Amboy.*
Fred Bayard Lyon,	*Lyons, Kansas.*
Fred Lewis Pfaff,	*Centralia.*
Marvin Bird Cleo Rounds,	*Chicago.*

HONORS AND PRIZES.

CLASS HONORS FOR AN AVERAGE OF NINETY PER CENT. OR ABOVE.

Senior Class.

Marvin Bird Cleo Rounds,
William Rice Graham,
Fred Lewis Pfaff,
Walter Holderread,
Fred Horace Priest,
Alfred Reuben Utt.

Junior Class.

Benjamin Perry,
William Downey
Earnest Eugene Eagelston,
Walter Hines Whisenant,
Charles Howk.

PRIZES.

Senior Class.

Marvin Bird Cleo Rounds - - -	Alumni Medal.
William Rice Graham - - -	Biroth Microscope.

Junior Class.

William Downey - - - - -	Pharmacy Medal.
Walter Hines Whisenant - -	Chemistry Medal.
Benjamin Perry - - - - -	Materia Medica Medal.

LIST OF STUDENTS.

Session of 1899-1900.

SENIORS.

Alexander, John William,	*Harvey.*
Arnold, Almond Clifford,	*Perrinton, Mich.*
Bilz, Michael Aloysius,	*Chicago.*
Boehm, Rudolph Siegfried,	*Chicago.*
Caron, Walter,	*Chicago.*
Czaja, Peter,	*Chicago.*
Daley, William Henry,	*Nashua, Iowa.*
von Danden, Raymond August	*Chicago.*
Davis, Leonard Watkins,	*Topeka, Kan.*
Dickey, Lily A.,	*Chicago.*
Drake, T. Guthred,	*Prairieton, Ind.*
Drallmeier, Fred Henry, Jr.,	*Quincy.*
Emerson, Irving Lewis,	*Sauk Center, Minn.*
Freeman, Roscius Wright,	*River Falls, Wis.*
Fulton, Peter McMullen,	*Stockton.*
Gillette, Arthur,	*Hudson, Mich.*
Graham, William Rice,	*Carlinville.*
Hobart, Maud Finley,	*Gilman.*
Holderread, Walter,	*Litchfield.*
Houseman, Gilbert James,	*Chicago.*
Ives, George Smith,	*Amboy.*
Jackola, Abraham Arthur,	*Calumet, Mich.*
James, Clarence Lorenzo,	*Herscher.*
Johnson, John August,	*Gile, Wis.*
Kenney, Cornelius Edward,	*Cedarburg, Wis.*
Kiedaisch, George Arthur,	*Keokuk, Ia.*
Kucera, Anton,	*Hazelhurst, Wis.*
Lestina, Joseph Matthew,	*Chicago.*
Lyon, Fred Bayard,	*Lyons, Kan.*
Niemeyer, John,	*Elkader, Ia.*
Paul, George Henry,	*Augusta, Wis.*
Pfaff, Fred Lewis,	*Centralia.*
Priest, Fred Horace,	*Hastings, Ia.*
Rose, William Ernest,	*Harrisburg.*

Rounds, Marvin Bird Cleo,	*Chicago.*
Scanlan, Walter Samuel,	*Chicago.*
Schreiber, Louis,	*Columbus, Neb.*
Solomon, Leo K.,	*Chicago.*
Stamm, Alfred Wenzel,	*Milwaukee, Wis.*
Steyer, George Edward,	*Chicago.*
Stimson, Charlotte Elizabeth,	*Tiskilwa.*
Utt, Alfred Reuben,	*Pittsfield.*
Valbracht, Harry Daniel,	*Chicago.*
Vincent, Philip Darius,	*Mason City, Ia.*
Warhanik, Alvernon Frank,	*Chicago.*
Webster, Charles Jeremiah,	*Canton.*
Weibel, Alfred Tennyson,	*Malden.*
Wellman, Walter Henry,	*Quincy.*

JUNIORS.

Bade, Walter Herbert,	*Plymouth, Wis.*
Baumann, Noble Franklin,	*Springfield.*
Bob, Paul William,	*Roseville.*
Bogue, Ralph Foster,	*Chicago.*
Bowden, Frederick Leopold Treacher,	*West Pullman.*
Bradshaw, Charles Elias,	*Princess Anne, Md.*
Briggs, William Jefferson,	*Burlington, Kan.*
Clarke, Fred Blaine,	*Morris, Minn.*
Crew, James Henry,	*Minneapolis, Minn.*
Delbridge, Cyril John,	*Chicago.*
Dilworth, Thomas Isaac,	*Warren, O.*
Downey, William,	*Wenona.*
Eagelston, Earnest Eugene,	*Castleton.*
Eder George Joseph,	*Crown Point, Ind.*
Englert, William Robert,	*Elko, Nev.*
Everett, Edwin Jr.,	*Atkinson.*
Fernholz, Edward Nicholas,	*Jefferson, Wis.*
Ferris, Vera Edna,	*Paris.*
Fox, Guy Gore,	*Norfolk, Neb.*
Gabrielson, Joseph Arthur,	*Chicago.*
Gans, Leo,	*Fremont, Neb.*
George, Alexander Hamilton,	*Chicago.*
Giese, Harry William,	*Bloomington.*
Gilmore, Ora Lee,	*Fisher.*

Glogau, Alexander,	*Chicago.*
Gold, Morris,	*Chicago.*
Halsted, Rolla Lester,	*Rock Falls.*
Heavey, James Patrick, Jr.,	*Chicago.*
Hibbe, Harry Mathew,	*Chicago.*
Hipke, Walter William,	*Hersher.*
Hogan, Daniel Joseph,	*Chicago,*
Hogan, Edward William,	*Amboy.*
Holden, Henry Frederick,	*Charlotte, Mich.*
Hopkins, Richard Herbert,	*Cole, Ia.*
Howk, Charles,	*Windsor.*
Hull, Harry LeRoy,	*Chicago.*
Ibach, Alfred Charles,	*Chicago.*
Jensen, Eli,	*Chicago.*
Kabat, Joseph Edward,	*Reedsville, Wis.*
Kenney, John Edward,	*Chicago.*
Kleinofen, Melvin,	*Chicago.*
Knaak, Theodore John,	*Deerfield,*
Koerper, Henry W.,	*Mendota.*
Kokes, Anton Randolph,	*Ord, Neb.*
Kraemer, Frank William,	*Chicago.*
Kreml, Otto Anton,	*Chicago.*
Kunz, William,	*Mayville, Wis.*
Lee, John Victor,	*Evanston.*
Lehmann, Ernest Sigmund,	*Chicago.*
Lofborn, Ralph Walter,	*Geneva.*
Lofstrom, Alfred,	*Chicago.*
Lyons, George Henry,	*Meadville, Pa.*
McDougall, Joseph Donald,	*Warsaw.*
Malone, John W.,	*La Salle.*
Mayo, Frederick William,	*Cedar Rapids, Ia.*
Mitchell, William Lewis,	*Newhope, S. Dak.*
Moore, Laurence Francis,	*Keokuk, Ia.*
Newman, Frank Leslie,	*Chicago,*
O Connell, Charles John,	*New Rockford, N. Dak.*
O'Malley, Will,	*Kankakee.*
Orbesen, Christ Jensen,	*Chicago.*
Perry Benjamin,	*Melvin.*
Peterson, Enoch Fred,	*Chicago.*
Phillips, William Robetoy,	*Selkirk, Ontario.*

Rennen, William Anthony,	*Chicago.*
Rexroth, Charles Marion,	*Napoleon, O.*
Robbins, Fred Dardinelles,	*Pekin.*
Roberts, William Henry,	*Piper City.*
Roesch, Anton,	*Waumandee, Wis.*
Salchert, Herman Anton,	*Oconto Falls, Wis.*
Saxe, George,	*Albion.*
Schaefer, Walter Johann,	*New Braunfels, Tex.*
Schaffarzick, Charles Frank Ralph,	*Jefferson, Wis.*
Schmidt, Edmund,	*Naperville.*
Schmitt, Walter,	*Chicago.*
Schneider, Roy Allison,	*Peotone.*
Schock, George Henry,	*Chicago.*
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Weston, Willard,	*Chicago.*
Weyrauch, James,	*Chicago.*
Whisenant, Walter Hines, B. S. (*Univ. of Texas*), 1899,	*Kyle, Texas,*
Wiedemann, Frank Albert,	*Quincy.*
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CHICAGO
COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY
OF
THE UNIVERSITY OF ILLINOIS

1901-1902.

Time Card, 1901-1902.

EXERCISES.	JUNIOR.			SENIOR.		
	TUESDAY.	THURSDAY.	SATURDAY.	MONDAY.	WEDNESDAY.	FRIDAY.
Recitations, 9 to 10 A. M.	Chemistry.	Pharmacy. Mr. Irvine.	Materia Medica. Prof. Day.	Materia Medica. Prof. Day.	Pharmacy. Mr. Irvine.	Chemistry.
Lectures, 10 to 11 A. M. and 11 A. M. to 12 M.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner,	Chemistry. Prof. Puckner.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Pharmacy. Prof. Hallberg.
	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.
Laboratory Instruction,	1 to 5 P. M. Sections I and II. Chemistry. Prof. Puckner.	1 to 5 P. M. Sections III. & IV. Chemistry. Prof. Puckner.	1 to 2 P. M. Section I. Pharmacognosy. Prof. Day and Mr. Gathercoal.	1 to 6 P. M. Chemistry. Prof. Puckner.	1 to 3 P. M. Section I. Microscopy, Prof. Day	1 to 2 P. M. Pharmacognosy. Prof. Day
	1 to 3 P. M. Section III. Microscopy. Prof. Day and Mr. Gathercoal.	1 to 3 P. M. Section I. Microscopy. Prof. Day and Mr. Gathercoal.	2 to 3 P. M. Section II. Pharmacognosy. Prof. Day and Mr. Gathercoal.		1 to 3 P. M. Section II. Dispensing. Prof. Hallberg	2 to 6 P. M. Pharmacy. Prof. Hallberg.
	1 to 3 P. M. Section IV. Dispensing. Prof. Hallberg	1 to 3 P. M. Section II. Dispensing. Prof. Hallberg.	1 to 3 P. M. Sections III & IV. Pharmacy. Prof. Hallberg.		3 to 5 P. M. Section I. Dispensing. Prof. Hallberg	
	3 to 5 P. M. Section III. Dispensing. Prof. Hallberg	3 to 5 P. M. Section I. Dispensing. Prof. Hallberg.	3 to 5 P. M. Sections I & II. Pharmacy. Prof. Hallberg.			
Junior work in the Dispensing Laboratory begins January 7, 1901.			3 to 4 P. M. Section III. Pharmacognosy. Prof. Day and Mr. Gathercoal.			
	3 to 5 P. M. Section IV. Microscopy. Prof. Day and Mr. Gathercoal.	3 to 5 P. M. Section II. Microscopy. Prof. Day and Mr. Gathercoal.	4 to 5 P. M. Section IV. Pharmacognosy. Prof. Day and Mr. Gathercoal.		3 to 5 P. M. Section II. Microscopy. Prof. Day and Mr. Gathercoal.	

COLLEGE CALENDAR.

1901

Tuesday,	Sept.	24,	Junior Lectures begin.
Wednesday,	"	25,	Senior Lectures begin.
Monday,	"	30,	Senior Laboratories open.
Tuesday,	Oct.	1,	Junior Laboratories open.
Thursday,	Nov.	28,	Thanksgiving Day. Holiday.
Saturday,	Dec.	21,	Last Session before the Holidays.

1902.

Monday,	Jan.	6,	Instruction resumed.
Wednesday,	Feb.	12,	Lincoln's Birthday. Holiday.
Saturday,	"	22.	Washington's Birthday. Holiday.
Friday,	April	4,	Senior Laboratories close.
Saturday,	"	5,	Junior Laboratories close.
Friday,	"	11,	Senior Lectures end.
Saturday,	"	12,	Junior Lectures end.
Monday,	"	14,	Final Examinations.
Tuesday,	"	15,	Final Examinations.
Wednesday,	"	16,	Final Examinations.
Thursday,	"	24,	Forty-second Commencement.
Thursday,	May	1,	Botanical Excursion.
Thursday,	"	15,	Botanical Excursion.
Thursday,	June	5,	Botanical Excursion.
Thursday,	"	19,	Botanical Excursion.
Thursday,	"	26,	Botanical Excursion.

NOTE.—Botanical Excursions are free to students and graduates. Those desiring to attend these excursions will, at the close of the term, notify the Actuary who will, before each excursion, notify them as to the time and place.

THE COLLEGE BUILDING.

Forty-second Annual Announcement

CHICAGO
College of Pharmacy

THE SCHOOL OF PHARMACY

OF

THE UNIVERSITY OF ILLINOIS

465-467 STATE STREET, CHICAGO.

SESSION OF 1901-1902

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PUBLISHED BY THE UNIVERSITY

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MARVIN BIRD CLEO ROUNDS, Ph. G., Assistant in Chemistry 465 State Street, Chicago.

HISTORY.

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a building in which ample space for many years' growth was provided. The better accommodations gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry, and

vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the national government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the national government scrip for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign county donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The state legislature has from time to time appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $1,600,000. In 1890, by passage of a law supplementary to the act of 1862, the congress of the United States provided further appropriations, which now amount to $25,000 annually.

The trustees of the University are nominated in the state conventions, and are elected, together with other state officers, by vote of the citizens of Illinois.

ANNOUNCEMENT.

The forty-second annual course of instruction in the Chicago College of Pharmacy—the School of Pharmacy of the University of Illinois—will begin Tuesday, September 24, 1901, at ten o'clock in the morning.

The session will continue seven months, closing upon Thursday, April 24, 1902, on which day the graduating exercises will be held.

AIMS AND SCOPE.

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education cannot be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due

consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

THE COLLEGE BUILDING

is advantageously located upon State street, near Polk street, close to the center of the business district of the city. Cable-car lines pass the door, the elevated loop is within three blocks, and the principal depots not far distant, making the college easily accessible from all parts of the city and suburbs. Good board and lodging can be obtained in the vicinity of the school at reasonable rates.

The entire building is devoted to the education of pharmacists. It was designed by practical pharmacists for that purpose, and nothing which experience could suggest was overlooked at the time of its construction.

THE LECTURE HALLS

are two in number, both in amphitheatre form, well lighted and comfortably heated. The larger of these, known as Attfield Hall, has a seating capacity of three hundred and fifty. The smaller will seat half of that number.

Besides these halls the building contains three laboratories of ample size, an office and reading-room, storerooms, etc.

THE PHARMACEUTICAL AND CHEMICAL LABORATORY

is provided with work-stands for ninety-six students, and has four times this number of lock-drawers and of lock-cupboards; so that a class of three hundred and eighty-four may be divided into four sections, if necessary, and each individual have his apparatus under lock and key. Aside from the individual kit furnished each student, the laboratory is provided with other chemical apparatus used to demonstrate the operations on a more extended scale. In connection with this room are a weighing room, store-rooms, fume-chambers, drying-closets, etc.

Each work-stand is three feet long and is supplied with water, sink, gas, water-bath, sand-bath, percolators, stand, graduates, funnels, thermometers, specific gravity apparatus, etc.

THE DISPENSING LABORATORY

is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy.

This laboratory occupies the ground floor of the building proper, and contains one hundred and twenty feet of counters and shelf fixtures.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.

THE MICROSCOPICAL LABORATORY

is situated upon the second floor, and is adapted for classes of forty students. A compound microscope, magnifying from seventy-five to four hundred diameters, is provided for each person. The individual equipment consists of reagents and mounting media, slides, cover glasses, forceps, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, contained in half-gallon bottles, to which the students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of 553 specimens, embracing those official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the southern states and from the far west, may be found in this collection.

THE OFFICE,

in which all the business of the school is transacted by the Actuary and his assistant, is upon the second floor, and serves as a reading room. This room also contains the Library, which, in addition to the regular works of reference, embraces many rare books. New books are constantly being added as the various departments of science progress, and files of all the leading pharmaceutical journals are accessible for the students' perusal.

REQUIREMENTS FOR ADMISSION.

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

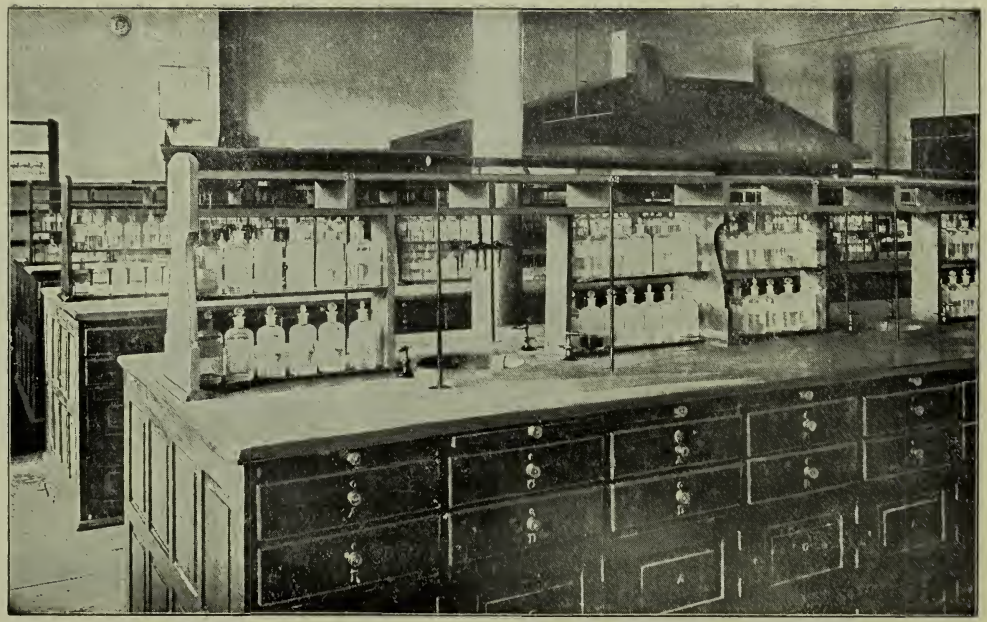
Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

REQUIREMENTS FOR GRADUATION.

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two full courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this college, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

ATTFIELD HALL—THE LARGER AUDITORIUM



A SECTION OF THE PHARMACEUTICAL AND CHEMICAL LABORATORY.

VIEW OF THE DISPENSING LABORATORY.

VIEW OF THE MICROSCOPICAL LABORATORY.

COURSE OF INSTRUCTION.

The course comprises a Junior and a Senior Year each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from six to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR.

PHARMACY.

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with a thorough exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects, and

causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopœia.*—These are grouped according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses, and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures, and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous com-

pounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

CHEMISTRY.

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed and attention is directed to the atomic theory based thereon. The student is now prepared to intelligently study the use of chemical symbols, formulæ and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout; here particular attention is given to stoichiometry, and in a number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry* —This course is devoted to the systematic consideration of the elements and

their inorganic compounds. Here also certain typical compounds and reactions will be studied in such manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

MATERIA MEDICA AND BOTANY.

This department embraces Materia Medica, Botany, Vegetable Histology, Microscopy, Pharmacognosy and Physiology.

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy,—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, each characteristic feature being duly pointed out. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In this course, the peculiar needs of the student are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

SENIOR YEAR.

PHARMACY.

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities indicating their respective therapeutic uses and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the

acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilities, as exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

CHEMISTRY.

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 17.)

5. *Quantitative Analysis*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all of the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

MATERIA MEDICA.

6. *Materia Medica.*—This is a course confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habitats, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly embraced within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year, this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focussing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible drugs such as are typical of the various plant organs are selected for study. The course closes with an outline of the methods employed in the detection of adulterations in powdered

drugs and the practical application of these methods in the examination of commercial drugs.

GENERAL INFORMATION.

TEXT BOOKS AND WORKS OF REFERENCE.

The books listed below have been selected as the best suited for the students use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

PHYSICS.—Gage's Elements of Physics.

CHEMISTRY.—*Sadtler and Coblentz's Pharmaceutical Chemistry*, Dobbin and Walker's Chemical Theory for Beginners, *Muter's Analytical Chemistry*, Bernthsen's Organic Chemistry, Prescott and Johnson's Qualitative Analysis, Schimpf's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Sayre's Materia Medica*, *Gray's School and Field Botany*, Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology.*

PHARMACY.—*The Pharmacopœia*, United States or National Dispensatory, *Remington's Practice of Pharmacy*, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

Some of these books are used only in the Junior Year, some only in the Senior Year and others during both years.

PRIZES.

TRUSTEES' MEDALS.—To the junior student in the department of Chemistry having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Materia Medica having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

To the junior student in the department of Pharmacy having the highest final average, provided it is ninety-six or over, will be awarded a gold medal.

It is expressly stipulated that no student shall receive more than one medal.

ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

BIROTH PRIZE.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done by him are sufficiently meritorious. Attendance, attention and general neatness will be taken into account in awarding this prize.

FEES AND EXPENSES.

No fee is required for matriculation.

TUITION FEES.—The tuition fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College without expense to the student, but

breakage or damage to apparatus must be paid for, and for this reason each junior and senior student is required to deposit five dollars with the Actuary. This deposit, or such portion of it as is not required for the specified purpose, will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging.—Good board and lodging, within walking distance of the college, can be had for from $4 to $6 per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

SELECTION OF SEATS.

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll it is necessary to fill out the matriculation blank and forward to the Actuary with a payment upon tuition of not less than five dollars. It is of advantage to students to matriculate early.

OPPORTUNITIES FOR EMPLOYMENT.

While the lectures and the laboratory practice, together with the required study, provide sufficient work to occupy all of the time of the average student yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

REGISTRATION IN THE STATE.

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized. The diploma of the College is, however, recognized in lieu of examination for registration in about twenty states of the Union.

For further information or for matriculation blank, address

W. B. Day, *Actuary*,
465 State Street, Chicago, Ill.

Or, W. L. Pillsbury, *Registrar*
Urbana, Ill.

GRADUATES, 1901.

DEGREE OF GRADUATE IN PHARMACY.

Harry Lawrence Marie Bank,	*Chicago.*
Ira Clark Bradley,	*Coal City.*
William Jefferson Briggs,	*Burlington, Kansas.*
Fred Blaine Clarke	*Morris, Minnesota.*
James Henry Crew,	*Minneapolis, Minnesota.*
Peter Czaja	*Chicago.*
William Downey	*Wenona.*
William Robert Englert	*Elko, Nevada.*
Edwin Everett, Jr.,	*Atkinson.*
Harry William Giese,	*Bloomington.*
Alexander Glogau	*Chicago.*
Maude Alma Gregg	*Attica, Kansas.*
George Henry Hamer	*Park Ridge.*
Henry Hartig	*Peoria.*
Maude Finley Hobart	*Gilman.*
Daniel Joseph Hogan	*Chicago.*
Charles Howk	*Windsor.*
Eli Jensen,	*Chicago.*
Robert August Karr,	*Metropolis.*
George Henry Lyons,	*Meadville, Pennsylvania*
Frederick William Mayo,	*Memphis, Tennessee.*
Joseph Donald McDougall,	*Warsaw.*
Frank Leslie Newman,	*Chicago.*
Richard Lisle Oliver,	*Stockton.*
Charles Wilbur Parker,	*Napoleon, Michigan.*
Benjamin Perry,	*Melvin.*
Enoch Fred Peterson,	*Chicago.*
William Robetoy Phillips,	*Selkirk, Ontario.*
Moses Reuben Price,	*Chicago.*
Frank Joseph Randack,	*Chicago.*
Albert Reichmann,	*Joliet.*
William Anthony Rennen,	*Chicago.*
William Robert Rodenhauser,	*Bloomington.*
Anton Roesch.	*Waumandee, Wisconsin.*
Herman Anton Salchert,	*Oconto Falls, Wisconsin.*
John Jacob Samuels,	*Chicago.*
Walter Johann Schaefer,	*New Braunfels, Texas.*
Charles Frank Ralph Schaffarzick,	*Jefferson, Wisconsin.*
Charles Frank Schultz,	*Neenah, Wisconsin.*
Arthur Henry Schulze,	*Chicago.*
Morris Albert Shapiro,	*Chicago.*
Vincent Howard Shaw,	*Kidder, Missouri.*
Edward Henry Stahl,	*Kansas City, Missouri.*
John Clyde Swan,	*Maywood.*
Frank Elijah Swartz,	*Roca, Nebraska.*
Roscius Wright Freeman (Class of 1900)	*River Falls, Wisconsin.*
George Smith Ives (Class of 1900)	*Amboy.*
Fred Lewis Pfaff (Class of 1900)	*Centralia.*
Marvin Bird Cleo Rounds (Class of 1900)	*Chicago.*

CERTIFICATES.

The following Senior students received certificates of having finished the course successfully, and will receive the degree when the required age and practical experience are attained:

Ralph Foster Bogue,	*Chicago.*
Cyril John Delbridge,	*Chicago.*
Otto John Dewitz,	*Chicago.*
Edward Nicholas Fernholz,	*Jefferson, Wisconsin.*
Guy Gore Fox,	*Norfolk, Nebraska.*
Richard Herbert Hopkins,	*Colo, Iowa.*
Frank William Kraemer,	*Chicago.*
Christ Jensen Orbesen,	*Chicago,*
George Saxe,	*Albion,*
Walter Schmitt,	*Chicago.*
Chester Arthur Ullman,	*Chicago.*
Walter Hines Whisenant,	*Kyle, Texas.*

HONORS AND PRIZES.

CLASS HONORS FOR AN AVERAGE OF NINETY PER CENT. OR ABOVE.

Senior Class.

Robert August Karr.
WalterHines Whisenant.
William Downey.
Walter Schmitt.
Benjamin Perry.

Junior Class.

Frank Herman Heidbreder.
Max Otto Rolff.
Gustav Adalbert Brenke.
Ernest Louis Naviaux.
Clyde Mason Snow.
Adolph George Wirth.
Sara Sibree Bornemann.
Fritz Vollrath Koepke.
Frederick Andrew Brown.

PRIZES.

Senior Class.

Moses Reuben Price. — *Biroth Prize.*

Junior Class.

Gustav Adalbert Brenke,	*Pharmacy Medal.*
Frank Herman Heidbreder,	*Chemistry Medal.*
Frederick Andrew Brown,	*Botany Medal.*

LIST OF STUDENTS.

Session of 1900-1901.

SENIORS.

Bank, Harry Lawrence Marie,	*Chicago*
Belmore, William Thomas,	*Highwood*
Bob, Paul William,	*Roseville*
Bogue, Ralph Foster,	*Chicago*
Bradley, Ira Clark,	*Coal City*
Brenner, George Frederick,	*Fowler*
Briggs, William Jefferson,	*Burlington, Kansas*
Clarke, Fred Blaine,	*Morris, Minnesota*
Crew, James Henry,	*Minneapolis, Minnesota*
Czaja, Peter,	*Chicago*
Delbridge, Cyril John,	*Chicago*
Dewitz, Otto John,	*Chicago*
Downey, William,	*Wenona*
Eagelston, Earnest Eugene,	*Castleton*
Englert, William Robert,	*Elko, Nevada*
Everett, Edwin,	*Atkinson*
Fernholz, Edward Nicholas,	*Jefferson, Wisconsin*
Fox, Guy Gore,	*Norfolk, Nebraska*
George, Alexander Hamilton,	*Chicago*
Giese, Harry William,	*Bloomington*
Glogau, Alexander,	*Chicago*
Gold, Morris,	*Chicago*
Gregg, Maude Alma,	*Attica, Kansas*
Hamer, George Henry,	*Park Ridge*
Hartig, Henry,	*Peoria*
Hastings, Patsy Henry,	*Bailey, Iowa*
Hibbe, Harry Mathew,	*Chicago*
Hobart, Maude Finley,	*Gilman*
Hogan, Daniel Joseph,	*Chicago*
Hopkins, Richard Herbert,	*Colo, Iowa*
Howk, Charles,	*Windsor*
Hull, Harry Peck,	*Chicago*
Ibach, Alfred Charles,	*Chicago*
Jensen, Eli,	*Chicago*

Karr, Robert August,	*Metropolis*
Kokes, Anton Rudolph,	*Ord, Nebraska*
Kraemer, Frank William,	*Chicago*
Lee, John Victor,	*Evanston*
Lyons, George Henry	*Meadville, Pennsylvania*
Mayo, Frederick William,	*Memphis Tennessee*
McDougall, Joseph Donald,	*Warsaw*
Moore, Laurence Francis,	*Keokuk, Iowa*
Newman, Frank Leslie,	*Chicago*
Oliver, Richard Lisle,	*Stockton*
Orbesen, Christ Jensen,	*Chicago*
Parker, Charles William,	*Napoleon, Michigan*
Perry, Benjamin,	*Melvin*
Peterson, Enoch Fred,	*Chicago*
Phillips, William Robetoy,	*Selkirk, Ontario*
Price, Moses Reuben.	*Chicago*
Randack, Frank Joseph,	*Chicago*
Reichmann, Albert,	*Joliet*
Rennen, William Anthony,	*Chicago*
Rodenhauser, William Robert,	*Bloomington*
Roesch, Anton,	*Waumandee, Wisconsin*
Salchert, Herman Anton.	*Oconto Falls, Wisconsin*
Samuels, John Jacob,	*Chicago*
Saxe, George,	*Albion*
Schaefer, Walter Johann,	*New Braunfels, Texas*
Schaffarzick, Charles Frank Ralph,	*Jefferson, Wisconsin*
Schmitt, Walter,	*Chicago*
Schultz, Charles Frank,	*Neenah, Wisconsin*
Schulze, Arthur Henry,	*Chicago*
Seltzer, Bert,	*Manhattan*
Shapiro, Morris Albert,	*Chicago*
Shaw, Vincent Howard,	*Kidder, Missouri*
Stahl, Edward Henry,	*Kansas City, Missouri*
Swan, John Clyde,	*Maywood*
Swartz, Frank Elijah,	*Roca, Nebraska*
Ullman, Chester Arthur,	*Chicago*
Whisenant, Walter Hines, B.S., (*Univ. of Tex.*) 1899.	*Kyle, Texas*

JUNIORS.

Bader, Henry,	*Chicago*
Baskerville, Thomas Henry,	*Coal City*
Beck, Fritz William,	*Chicago*
Beckwith, George,	*La Grange*
Behrensmeyer, Harry Frederick,	*Quincy*
Blumenthal, Moses,	*Dubuque, Iowa*
Bornemann, Sara Sibree,	*Oak Park*
Bourne, Carl Ellwood,	*Clay City, Indiana*
Bourne, Earl Scott,	*Lewis, Indiana*
Bowden, Fred Leopold Treacher,	*Chicago*
Bowman, Charles Odus,	*Wathena, Kansas*
Bowman, Leroy Urban,	*Danville*
Brenke, Gustav Adalbert,	*Chicago*
Brown, Frederick Andrew,	*Chicago*
Caldwell, Edwin Kyle,	*Chicago*
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De Land, Harry Rollins,	*Papillion, Nebraska*
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Henke, Albert Philip,	*Aurora*
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Jerusal, Stanley James,	*Chicago*
Jungk, Ferdinand Erwin Oscar	*Chicago*
Keller, Walter Valentine,	*Chicago*
Koepke, Fritz Vollrath,	*Amboy*
Kovnat, Alexander,	*Chicago*
Krzywinski, Joseph,	*Chicago*
Laufer, Earnest William David,	*Chicago*
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Leonard, William C.,	*St. Louis, Michigan*
Lippold, Leonard Warren,	*St. Joseph, Michigan*
Lye, Edward,	*Neillsville, Wisconsin*
McClenahan, Carl,	*Lafayette*
McCormick, George Allan,	*Hennepin*
Meinung, Robert, Arthur William,	*Chicago*
Mercil, Elmer Joseph,	*Chicago*
Mick, Carl Frederick,	*Neillsville, Wisconsin*
Mills, Earl C.,	*Ossian, Iowa*
Mitchell, Isaac Frederick,	*Farmer City*
Monilaws, Stewart Alexander,	*Kincardine, Ontario*
Moyer, Harry Thomas,	*Chicago*
Naughton, Thomas Michael,	*Chicago*
Naviaux, Earnest Louis,	*Lexington, Nebraska*
Nywall, David Alfred,	*Lindsborg, Kansas*
Ostergreen, Oscar,	*Chicago*
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Ragor, Joseph Andrew,	*Chicago*
Reibe, Charles Will	*Chicago*
Reid, Manus,	*Media*

Rolff, Max Otto,	*Peoria*
Rommel, Hans Karl Kurt,	*Chicago*
Salisbury, Fred Henry,	*Kearney, Nebraska*
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CHICAGO COLLEGE OF PHARMACY

THE SCHOOL OF PHARMACY OF THE UNIVERSITY OF ILLINOIS

1902 - 1903

Time Card, 1902--1903.

EXERCISES	JUNIOR			SENIOR		
	TUESDAY.	THURSDAY.	SATURDAY.	MONDAY.	WEDNESDAY.	FRIDAY.
Recitations 9 to 10 A. M. (Alumni Quiz)	Chemistry.	Pharmacy. Mr. Irvine.	Materia Medica. Prof. Day.	Materia Medica. Prof. Day.	Pharmacy. Mr. Irvine.	Chemistry.
Lectures, 10 to 11 A. M. and 11 A. M. to 12 M.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Chemistry. Prof. Puckner.	Pharmacy. Prof Hallberg.	Chemistry. Prof. Puckner.	Pharmacy. Prof. Hallberg.
	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.
Laboratory Instruction.	1 to 5 P. M. Sections I and II. Chemistry. Prof. Puckner.	1 to 5 P. M. Sections III & IV. Chemistry. Prof. Puckner.	1 to 2 P. M. Section I. Pharmacognosy. Prof. Day.	1 to 6 P. M. Chemistry. Prof. Puckner.	1 to 3 P. M. Section I. Microscopy. Prof. Day.	1 to 2 P. M. Pharmacognosy. Prof. Day.
	1 to 3 P. M. Section III. Microscopy. Prof. Day.	1 to 3 P. M. Section I. Microscopy. Prof. Day.	2 to 3 P. M. Section II. Pharmacognosy. Prof. Day.		1 to 3 P. M. Section II. Dispensing. Prof. Hallberg.	2 to 6 P. M. Pharmacy. Prof. Hallberg.
	1 to 3 P. M. Section IV. Dispensing. Prof. Hallberg.	1 to 3 P. M. Section II. Dispensing. Prof. Hallberg.	1 to 3 P. M. Sections III & IV. Pharmacy. Prof. Hallberg.		3 to 5 P. M. Section I. Dispensing. Prof. Hallberg.	
Junior work in the Dispensing Laboratory begins January 6, 1902.	3 to 5 P. M. Section III. Dispensing. Prof. Hallberg.	3 to 5 P. M. Section I. Dispensing. Prof. Hallberg.	3 to 5 P. M. Sections I & II. Pharmacy. Prof. Hallberg.		3 to 5 P. M. Section II. Microscopy. Prof. Day.	
	3 to 5 P. M. Section IV. Microscopy. Prof. Day.	3 to 5 P. M. Section II. Microscopy. Prof. Day.	3 to 4 P. M. Section III. Pharmacognosy. Prof. Day.			
			4 to 5 P. M. Section IV. Pharmacognosy. Prof. Day.			

COLLEGE CALENDAR YEAR

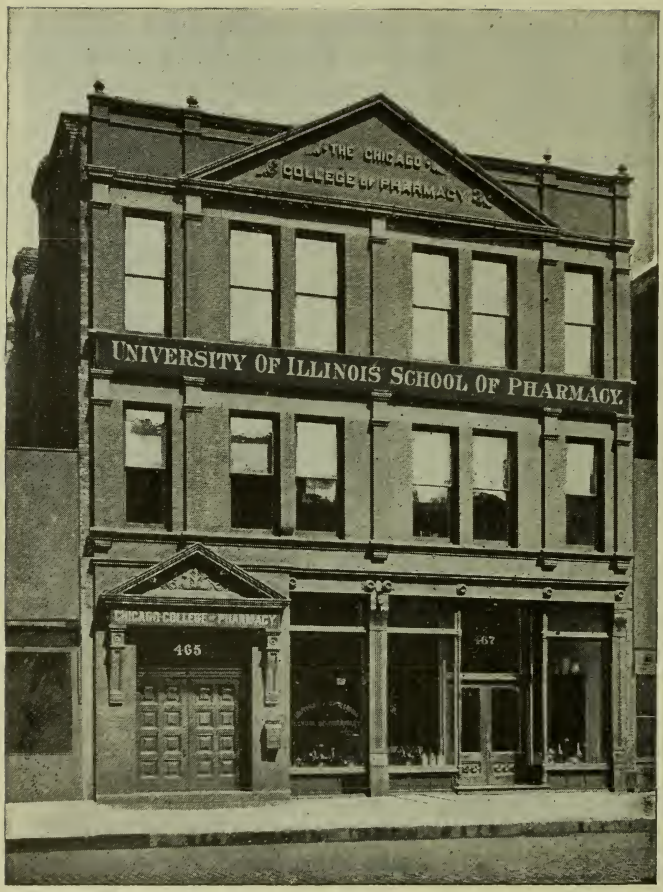
1902

Tuesday,	Sept.	23,	Junior Lectures begin.
Wednesday,	"	24,	Senior Lectures begin.
Monday,	"	29,	Senior Laboratories open.
Tuesday,	"	30,	Junior Laboratories open.
Thursday,	Nov.	27,	Thanksgiving Day. Holiday.
Saturday,	Dec.	20,	Last Session before the Holidays.

1903

Monday,	Jan.	5.	Instruction resumed.
Thursday,	Feb.	12,	Lincoln's Birthday. Holiday.
Friday,	April,	3,	Senior Laboratories close.
Saturday,	"	4,	Junior Laboratories close.
Friday,	"	10,	Senior Lectures end.
Saturday,	"	11,	Junior Lectures end.
Monday,	"	13,	Final Examinations.
Tuesday,	"	14,	Final Examinations.
Wednesday,	"	15,	Final Examinations.
Thursday,	"	23,	Forty-second Commencement.
Thursday,	"	30,	Botanical Excursion.
Thursday,	May	14,	Botanical Excursion.
Thursday,	"	28,	Botanical Excursion.
Thursday,	June	11,	Botanical Excursion.
Thursday,	"	25	Botanical Excursion.

NOTE.—Botanical Excursions are free to students and graduates. Those desiring to attend these excursions will, at the close of the term, notify the Actuary, who will, before each excursion, notify them of the time and place.



THE COLLEGE BUILDING.

FORTY-THIRD ANNUAL ANNOUNCEMENT

Chicago College of Pharmacy

THE SCHOOL OF PHARMACY OF
THE UNIVERSITY OF ILLINOIS

465-467 State Street, Chicago

SESSION OF 1902-1903

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Ephraim Dinsmore Irvine, Ph. G., Instructor in Pharmacy, 358 Dearborn Street, Chicago.

Edmund Norris Gathercoal, Ph. G., Instructor in Pharmacognosy, Wilmette.

Harold Gideon Swanson, Ph. G., 465 State Street, Chicago.

Walter Schmitt, Ph. G., Assistant in Chemistry, 465 State Street, Chicago.

HISTORY

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of the pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a building in which ample space for many years' growth was provided. The better accommodation gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being en-

tirely optional. Laboratory courses in pharmacy, chemistry, and vegetable history were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the national government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the national government scrip for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign county donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The state legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $1,600,000. In 1890, by passage of a law supplementary to the act of 1862, the congress of the United States provided further appropriations, which now amount to $25,000 annually.

The trustees of the University are nominated in the state conventions, and are elected, together with other state officers, by vote of the citizens of Illinois.

ANNOUNCEMENT

The forty-third annual course of instruction in the Chicago College of Pharmacy—the School of Pharmacy of the University of Illinois—will begin Tuesday, September 23, 1902, at ten o'clock in the morning.

The session will continue seven months, closing upon Thursday, April 23, 1903, on which day the graduating exercises will be held.

Aims and Scope

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education cannot be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving

due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

The College Building

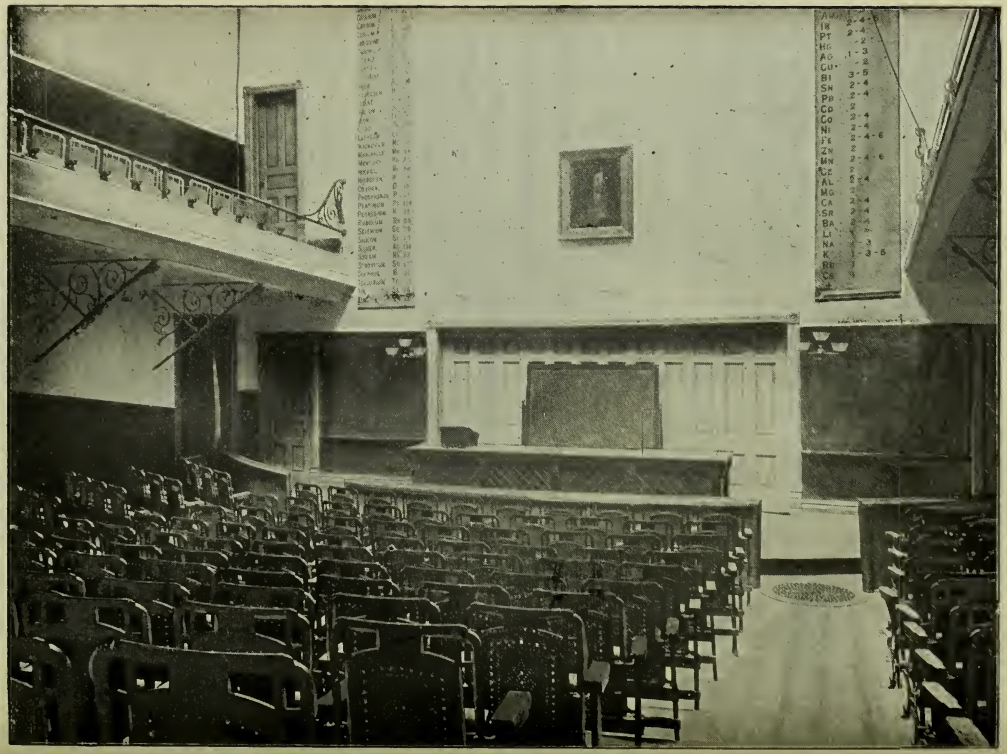
is advantageously located upon State street, near Polk street, close to the center of the business district of the city. Cable-car lines pass the door, the elevated loop is within three blocks, and the principal depots not far distant, making the college easily accessible from all parts of the city and suburbs. Good board and lodging can be obtained in the vicinity of the school at reasonable rates.

The entire building is devoted to the education of pharmacists. It was designed by practical pharmacists for that purpose, and nothing which experience could suggest was overlooked at the time of its construction.

The Lecture Halls

are two in number, both in amphitheatre form, well lighted and comfortably heated. The larger of these, known as Attfield Hall, has a seating capacity of three hundred and fifty. The smaller will seat half of that number.

Besides these halls, the building contains three laboratories of ample size, an office and reading-room, storerooms, etc.



ATTFIELD HALL—THE LARGER AUDITORIUM

The Pharmaceutical and Chemical Laboratory

is provided with work-stands for ninety-six students, and has four times this number of lock-drawers and of lock-cupboards; so that a class of three hundred and eighty-four may be divided into four sections, if necessary, and each individual have his apparatus under lock and key. Aside from the individual kit furnished each student, the laboratory is provided with other chemical apparatus used to demonstrate the operations on a more extended scale. In connection with this room are a weighing-room, store-rooms, fume-chambers, drying-closets, etc.

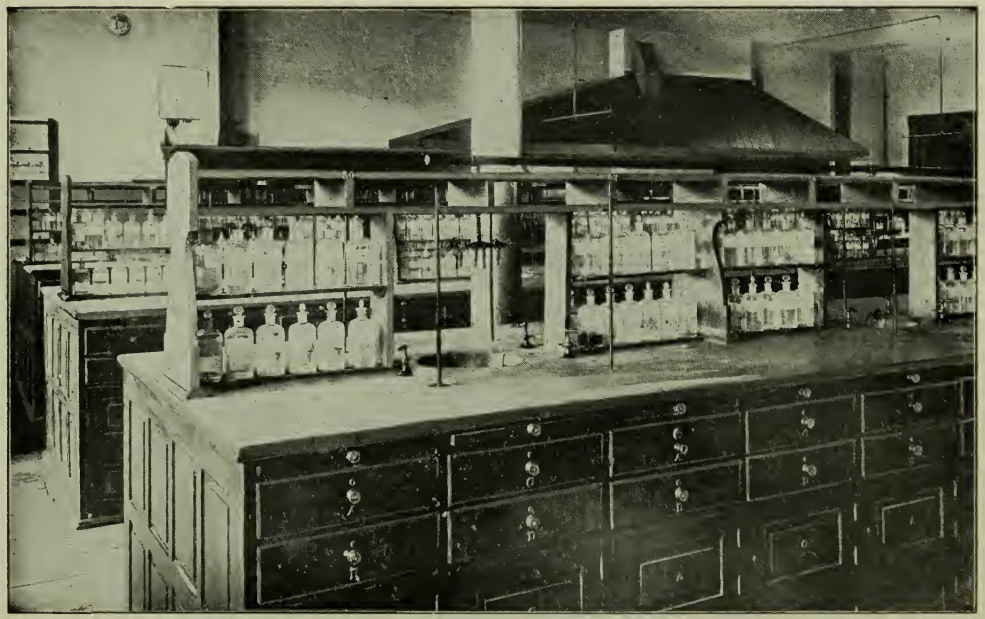
Each work-stand is three feet long and is supplied with water, sink, gas, water-bath, sand-bath, percolators, stand, graduates, funnels, thermometers, specific gravity apparatus, etc.

The Dispensing Laboratory

is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy.

This laboratory occupies the ground floor of the building proper, and contains one hundred and twenty feet of counters and shelf fixtures.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.



A SECTION OF THE PHARMACEUTICAL AND CHEMICAL LABORATORY.

The Microscopical Laboratory

is situated upon the second floor, and is adapted for classes of forty students. A compound microscope, magnifying from seventy-five to four hundred diameters, is provided for each person. The individual equipment consists of reagents and mounting media, slides, cover glasses, forceps, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, contained in half-gallon bottles, to which the students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of 553 specimens, embracing those official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the southern states and from the far west, may be found in this collection.

The Office,

in which all the business of the school is transacted by the Actuary and his assistant, is upon the second floor, and serves as a reading room. This room also contains the Library, which, in addition to the regular works of reference, embraces many rare books. New books are constantly being added as the various departments of science progress, and files of all the leading pharmaceutical journals are accessible for the students' perusal.

VIEW OF THE DISPENSING LABORATORY.

Requirements for Admission

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

Requirements for Graduation

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this college, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with .

VIEW OF THE MICROSCOPICAL LABORATORY.

Course of Instruction

The course comprises a Junior and a Senior Year each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from six to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR

Pharmacy

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with a thorough exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena,

effects, and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopoeia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures, and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extem-

poraneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

CHEMISTRY

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed and attention is directed to the atomic theory based thereon. The student is now prepared to intelligently study the use of chemical symbols, formulæ and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout; here particular attention is given to stoichiometry, and in a number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical com-

pounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany

This department embraces Materia Medica, Botany, Vegetable Histology, Microscopy, Pharmacognosy and Physiology.

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy,—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, each characteristic feature being duly pointed out. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course, the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

SENIOR YEAR

PHARMACY

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the

acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified accord- to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilitites, as exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

Chemistry

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 19.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all of the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

MATERIA MEDICA

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habitats, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year, this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are typical of the various plant organs are selected for

study. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

GENERAL INFORMATION.

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

Physics.—Gage's Elements of Physics.

Chemistry.—*Sadtler and Coblentz's Pharmaceutical Chemistry Vol. I,* Dobbin and Walker's Chemical Theory for Beginners, *Muter's Analytical Chemistry,* Bernthsen's Organic Chemistry, Prescott and Johnson's Qualitative Analysis, Schimpf's Volumetric Analysis.

Materia Medica and Botany.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology.*

Pharmacy.—*The Pharmacopoeia,* United States or National Dispensatory, *Remington's Practice of Pharmacy,* Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

Prizes

Alumni Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

Biroth Prize.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Attendance, attention and general neatness will be taken into account in awarding this prize.

The Hereth Prize.—The Searle & Hereth Company offers a prize consisting of a Troemner analytical balance and weights to the senior student who attains the highest degree of proficiency in Chemistry.

Fees and Expenses

No fee is required for matriculation.

Tuition Fees.—The tuition fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

Laboratory Deposit.—Chemical and pharmaceutical

apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College without expense to the student, but breakage or damage to apparatus must be paid for, and for this reason each junior and senior student is required to deposit five dollars with the Actuary. This deposit, or such portion of it as is not required for the specified purpose, will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging.—Good board and lodging, within walking distance of the college, can be had for from four to six dollars per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are needed during the first year.

Selection of Seats

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll it is necessary to fill out the matriculation blank

and forward to the Actuary with a payment upon tuition of not less than five dollars. It is of advantage to students to matriculate early.

Opportunities for Employment

While the lectures and the laboratory practice, together with the required study, provide sufficient work to occupy all of the time of the average student, yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

State Registration

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized. The diploma of the College is, however, recognized in lieu of examination for registration in about twenty states of the Union.

For further information or for matriculation blank, address

W. B. Day, *Actuary,*
465 State Street, Chicago, Ill.

Or, W. L. Pillsbury, *Registrar,*
Urbana, Ill.

GRADUATES, 1902

Degree of Graduate in Pharmacy

Carl Elwood Bourne.....Chicago.
Gustav Adalbert Brenke.....Chicago.
Harry Rollins DeLand.....Shelton, Neb.
Walter Frank Engel.....Chicago.
Jacob Theodore Fawcett.....Princeton.
Philip Joseph Forbrich.....Chicago.
William Benjamin Freeman.....Chicago.
Charles Matthias Friesenecker.....Galena.
Frank Herman Heidbreder.....Quincy.
Harry Mathew Hibbe.....Chicago.
Guy Weedman Houseman.....Farmer City.
Walter Valentine Keller.....Chicago.
Harold Brooke Kemp.....Momence.
Theodore John Knaak.....Deerfield.
Ernest William David Laufer.....Chicago.
Lewis Melvin Martz.....Watonga, Okla.
George Allan McCormick.....Hennepin.
Harry Thomas Moyer.....Pittsburg, Ind.
Frank Elbert Pierce.....Worthington, Minn.
Max Otto Rolff.....Peoria.
Hans Carl Curt Rommel.....Chicago.
Arthur Theodore Schleder.....Lena.
Charles Henry Schmidt.....Chicago.
Albertus Seltzer.....Manhattan.
Brazill Oscar Smith.....Rockford.
Clyde Mason Snow.....Earlville.
Charles Gottlieb Stegmayer.....Shelbyville.
Frederick Douglas Garnet Walker.....Gibbon, Neb.
John Christopher Wheatcroft.....Grayville.
Adolph George Wirth.....Duluth, Minn.
Boyden Nims (Class of '99).....Charlotte, N. C.
Frank Geo. Douglas Smith (Class of '99).Grand Forks, N. D.
Peter McMullen Fulton (Class of '00)...Gayville, S. D.
Otto John Dewitz (Class of '01).....Chicago.
Edward Nicholas Fernholz (Class of '01).Jefferson, Wis.
Guy Gore Fox (Class of '01).....Norfolk, Neb.
Richard Herbert Hopkins (Class of '01)..Colo, Ia.
Walter Schmitt (Class of '01).....Chicago.
Chester Arthur Ullman (Class of '01)...Chicago.

DEGREE OF PHARMACEUTICAL CHEMIST.

Robert Clyde Smith (Class of '99)..... Oak Park.

CERTIFICATES

The following Senior students received certificates of having finished the course successfully, and will receive the degree when the required age and practical experience are attained:

Sara Sibree Bornemann.....Oak Park.
Charles Odus Bowman.....Wathena, Kan.
Frederick Andrew Brown.....Chicago.
John William Drewitz.....La Salle.
Arthur Leroy Hamley.....Maquoketa, Ia.
Carl Dilly McClenahan.....La Fayette.
Elmer Joseph Mercil.....Chicago.
Lee Murray Pedigo.....Augusta, Ga.
Charles John Welker.....Chicago.

HONORS AND PRIZES

Class Honors, Excellence in Scholarship

Senior Class.

Frank Herman Heidbreder.
Gustav Adalbert Brenke.
Max Otto Rolff.
Ernest William David Laufer.
Sara Sibree Bornemann.
Frederick Andrew Brown.
William Benjamin Freeman.

Junior Class.

Samuel Walker Taliaferro.
James Shaynin.
Harry Edgar Stadelmann.
Joseph Richard Shinnick.
Charles Henry Schafer.
John Dixon Charters.
William Hermann Hagemann.
Charles Nicholas Storkan.
Otto Hironimus.
George William Pulford.
Emil Jan Karlovsky.

Prizes

Senior Class.

Frank Herman Heidbreder, *Alumni Medal.*
Max Otto Rolff, *Biroth Prize.*

Junior Class.

Samuel Walker Taliaferro, *Pharmacy Medal.*
Otto Hironimus, *Chemistry Medal.*

LIST OF STUDENTS

Session of 1901-1902.

SENIORS.

Baskerville, Thomas Henry.....Coal City.
Bornemann, Sara Sibree.....Oak Park.
Bourne, Carl Ellwood.....Clay City Ind.
Bowman, Charles Odus.....Wathena, Kan.
Brenke, Gustav Adalbert.....Chicago.
Brown, Frederick Andrew.....Chicago.
DeLand, Harry Rollins.....Shelton, Neb.
Drewitz, John William.....La Salle.
Engel, Walter Frank.....Chicago.
Fawcett, Jacob Theodore.....Princeton.
Forbrich, Philip Joseph.....Chicago.
Freeman, William Benjamin.....Chicago.
Friesenecker, Charles Matthias.....Galena.
Geerlings, Isaac.....Milwaukee, Wis.
Hamley, Arthur Leroy.....Maquoketa, Ia.
Hart, Benjamin Thomas.....Camp Point.
Heidbreder, Frank Herman.....Quincy.
Hibbe, Harry Mathew.....Chicago.
Hitchcock, John Henry.....Lewistown.
Houseman, Guy Weedman.....Farmer City.
Jungk, Ferdinand Erwin Oscar.....Chicago.
Keller, Walter Valentine.....Chicago.
Kemp, Harold Brooke.....Momence.
Knaak, Theodore John.....Deerfield.
Laufer, Ernest William David.....Chicago.
Martz, Louis Melvin.....Watonga, Okla.
McClenahan, Carl Dilly.....Lafayette.
McCormick, George Allan.....Hennepin.
Mercil, Elmer Joseph.....Chicago.
Moyer, Harry Thomas.....Chicago.
Nywall, David Alfred.....Lindsborg, Kan.
Ozanne, Philo Hoysradt.....Tempe, Ariz.
Pedigo, Lee Murray.....Augusta, Ga.
Pierce, Francis Elbert.....Worthington, Minn.
Rolfe, James Arthur.....Chicago.
Rolff. Max Otto.....Peoria.
Rommel, Hans Carl Curt.....Chicago.
Sauerberg, Einar Andre.....Chicago.
Schleder, Arthur Theodore.....Lena.
Schmidt, Charles Henry.....Chicago.
Schneider, Roy Allison.....Peotone.
Seltzer, Albertus .....Manhattan.

Smith, Brazill Oscar..... Rockford.
Snow, Clyde Mason.....Earlville.
Stegmayer, Charles Gottlieb.....Shelbyville.
Tiscornia, John Baptist.....Chicago.
Valbracht, Harry Daniel.....Chicago.
Voge, William Fred.....Chicago.
Walker, Frederick Douglas Garnet.....Gibbon, Neb.
Welker, Charles John.....Chicago.
Wendt, Walter Eli.....Mayville, Wis.
Wheatcroft, John Christopher.....Grayville.
Wirth, Adolph George.....Duluth, Minn.
Wojtalewicz, John Benedict.....Chicago.

JUNIORS.

Alkire, Louis Lambert.....Chalmers, Ind.
Annis, Reginald Frank.....Rhinelander, Wis.
Ansorge, William Kilian.....Green Bay, Wis.
Barber, Elmer Clarence.....Chicago.
Barthell, Walter Kastner.....Peoria.
Bauer, August Harvey.....Chicago.
Brown, Rudolph John.....Chicago.
Calhoun, Hal Newton.....Cairo.
Cartier, Frank Jeremiah.....Kankakee.
Charters, John Dixon.....Ashton.
Corbus, Andrew Martin.....Chicago.
Dearth, Herbert John.....Grand Ridge.
Demes, Charles Albert.....Chicago.
Denis, Sidney Alvaro.....Centralia, Wis.
Devine, Owen Crippen.....Marietta, O.
Dietrich, Alfred.....Leavenworth, Kan.
Dilley, George Mansfield.....Shelbyville.
Dolson, Emil Rutherford.....Chicago.
Ellig, Leonard Gustaf.....Manitowoc, Wis.
Frank, Louis.....Chicago.
Fritz, Oscar Albert.....Chicago.
Funkhouser, Horace Earl.....Mattoon.
Gessner, Thomas.....Springfield.
Gharet, Ralph Roland.....Birmingham, Ala.
Ginnsy, Leo Aloysius.....Sublette.
Gladville, Will.....Sullivan.
Grubb, Don Wiard.....Galesburg.
Hagemann, William Hermann.....Quincy.
Hahn, Elmer Orville.....Roberts.
Harris, Louis.....Chicago.
Hatton, Henry Timothy.....Montrose, Ia.
Hironimus, Otto.....Mt. Vernon, Ind.
Howes, Lincoln.....Bloomington.

Jaworski, Edmund William.....Chicago.
Jeronimus, Henry Jurgen Huwald.....Duluth, Minn.
Johnson, Axel Gustaf Edward.....Chicago.
Jones, Edward William.....Plankinton, S. D.
Justus, Samuel Vansant.....Chicago.
Kappus, John Martin.....Chicago.
Karlovsky, Emil Jan.....Chicago.
Kenyon, Edgar Clay.....Chicago.
Key, Wallace Neil.....Ashley.
Koepsell, August John.....Mayville, Wis.
Koller, Charles John.....Chicago.
Lambert, John Henry.....Kankakee.
Lawrence, Victor Emanuel.....Chesterton, Ind.
Lester, Shipley.....Peoria.
Marshall, Charles Stephen.....Watonga, Okla.
Martin, Wesley Attfield.....St. Anne.
Merriman, Fred Stoughton.....Moline.
Meyer, Frank Joseph.....Peoria.
Meyer, Fred Hugo.....Chicago.
Mitchell, George Hezekiah.....Chicago.
Modaff, John N.....Aurora.
Moffitt, Saint John.....Fithian.
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Schafer, Charles Henry.....Marietta, O.
Schmitt, Henry John.....Chicago.
Schroeder, William.....La Porte, Ind.
Shaynin, James.....Chicago.
Shebleske, Michael Albert.....Chicago.
Shinnick, Joseph Richard.....Watertown, Wis.
Siebrandt, Martin John.....Merrill, Wis.

Sowka, Andrew William.....Chicago.
Stadelmann, Harry Edgar.....Mazomanie, Wis.
Storkan, Charles Nicholas.....Wilber, Neb.
Taliaferro, Samuel Walker.....Roseville.
Thometz, Peter Paul.....Chicago.
Venn, Charles.....Chicago.
Voss, Fritz.....Chicago.
Walter, Harry Elsworth.....Aledo.
Walta, Edmund Joseph.....Chicago.
Walz, Fred Charles.....Nashua, Ia.
Waters, James Monroe.....Clyde.
Wehrley, George.....Chicago.
Weimer, Carl John.....Pekin.
Wenban, Frank James.....Lake Forest.
White, Wallace Bernard.....Chicago.
Willaman, Edson Stayman.....Chicago.
Wochas, Frank.....Stangelville, Wis.
Zamentowsky, David.....Chicago.
Zemlika, Frank C.....Merrill, Wis.

University of Illinois

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COLLEGES—*Literature and Arts* (Ancient and Modern Languages and Literatures, Philosophical and Political Science Groups of Studies, Economics, Commerce and Industry). *Engineering* (Architecture, Civil Engineering, Municipal and Sanitary Engineering, Electrical Engineering, Mechanical Engineering, Railway Engineering). *Science* (Astronomy, Botany, Chemistry, Geology, Mathematics, Physics, Physiology, Zoology). *Agriculture* (Animal Husbandry, Agronomy, Dairy Husbandry, Horticulture, Household Science). *Law*. *Medicine* (College of Physicians and Surgeons, Chicago).

SCHOOLS—Music, Library Science, Pharmacy (Chicago), Dentistry (Chicago). Graduate School, Summer session of nine weeks, beginning June 16, 1902.

United States Experiment Station, State Laboratory of Natural History, Biological Experiment Station on Illinois River, State Water Survey.

Military Regiment, Military Band, Choral Society, Glee and Mandolin Clubs; Literary, Scientific, and Technical Societies and Clubs; Young Men's and Young Women's Christian Associations.

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295 members of faculty; 2932 students; 339 free scholarships; 60,000 volumes in library; 17 buildings.

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URBANA, ILLINOIS.

CHICAGO COLLEGE OF PHARMACY

The School of Pharmacy of the University of Illinois

1903
1904

Time Card, 1903-1904.

EXERCISES	JUNIOR			SENIOR		
	TUESDAY	THURSDAY	SATURDAY	MONDAY	WEDNESDAY	FRIDAY
Recitations 9 to 10 A. M. (Alumni Quiz)	Chemistry. Mr. Schmitt.	Pharmacy. Mr. Snow.	Materia Medica. Prof. Day.	Materia Medica. Prof. Day.	Pharmacy. Mr. Snow.	Chemistry. Mr. Schmitt.
Lectures, 10 to 11 A. M. and 11 A. M. to 12 M.	Pharmacy. Prof. Hallberg.	Chemistry Prof. Puckner.	Chemistry. Prof. Puckner.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Pharmacy. Prof. Hallberg.
	Materia Medica. Prof. Goodman.	Materia Medica. Prof. Goodman.	Pharmacy. Prof. Hallberg.	Chemistry. Prof. Puckner.	Materia Medica. Prof. Goodman.	Mateira Medica. Prof. Goodman.
Laboratory Instruction.	1 to 5 P. M. Sections I and II. Chemistry. Prof. Puckner.	1 to 5 P. M. Sections III & IV. Chemistry. Prof. Puckner.	1 to 2 P. M. Section I. Pharmacognosy. Prof. Day.	1 to 6 P. M. Chemistry. Prof. Puckner.	1 to 3 P. M. Section I. Microscopy. Prof. Day.	1 to 2 P. M. Pharmacognosy. Prof. Day.
	1 to 3 P. M. Section III. Microscopy. Prof. Day.	1 to 3 P. M. Section I. Microscopy. Prof. Day.	2 to 3 P. M. Section II. Pharmacognosy. Prof. Day.		1 to 3 P. M. Section II. Dispensing. Prof. Hallberg.	2 to 6 P. M. Pharmacy. Prof. Hallberg.
	1 to 3 P. M. Section IV. Dispensing. Prof. Hallberg.	1 to 3 P. M. Section II. Dispensing. Prof. Hallberg.	1 to 3 P. M. Sections III & IV. Pharmacy. Prof. Hallberg.		3 to 5 P. M. Section I. Dispensing. Prof. Hallberg.	
Junior work in the Dispensing Laboratory begins January 5, 1904.	3 to 5 P. M. Section III. Dispensing. Prof. Hallberg.	3 to 5 P. M. Section I. Dispensing. Prof. Hallberg.	3 to 5 P. M. Sections I & II. Pharmacy. Prof. Hallberg.		3 to 5 P. M. Section II. Microscopy. Prof. Day.	
	3 to 5 P. M. Section IV. Microscopy. Prof. Day.	3 to 5 P. M. Section II Microscopy. Prof. Day.	3 to 4 P. M. Section III. Pharmacognosy. Prof. Day.			
			4 to 5 P. M. Section IV. Pharmacognosy. Prof. Day.			

COLLEGE CALENDAR YEAR

1903.

Tuesday,	Sept.	29,	Junior Lectures begin.
Wednesday,	"	30,	Senior Lectures begin.
Friday,	Oct.	2,	Senior Laboratories open.
Saturday,	"	3,	Junior Laboratories open.
Thursday,	Nov.	26,	Thanksgiving Day. Holiday.
Saturday,	Dec.	19,	Last Session before the Holidays.

1904.

Monday,	Jan.	4,	Instruction resumed.
Friday,	Feb.	12,	Lincoln's Birthday. Holiday.
Monday,	Feb.	22,	Washington's Birthday. Holiday.
Monday,	April	4,	Senior Laboratories close.
Thursday,	"	7,	Junior Laboratories close.
Friday,	"	15,	Senior Lectures end.
Saturday,	"	16,	Junior Lectures end.
Monday,	"	18,	Final Examinations.
Tuesday,	"	19,	Final Examinations.
Wednesday,	"	20,	Final Examinations.
Thursday,	"	28,	Forty-second Commencement.
Thursday,	May	5,	Botanical Excursion.
Thursday,	"	12,	Botanical Excursion.
Thursday,	"	26,	Botanical Excursion.
Thursday,	June	9,	Botanical Excursion.
Thursday,	"	23,	Botanical Excursion.

NOTE.—Botanical Excursions are free to students and graduates. Those desiring to attend these excursions will, at the close of the term, notify the Actuary, who will, before each excursion, notify them of the time and place.

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Carl Svante Nicanor Hallberg, Ph. G., Professor of Theoretical and Practical Pharmacy, 358 Dearborn Street, Chicago.

William August Puckner, Ph. G., Professor of Chemistry, 75 Wells Street, Chicago.

William Baker Day, Ph. G., Secretary of the Faculty, Professor of Histological Botany, 465 State Street, Chicago.

Henry Horace Rogers, Ph. B., M. D., Lecturer on Physiology, Kankakee.

Clyde Mason Snow, Ph. G., Instructor in Pharmacy, 358 Dearborn Street, Chicago.

Edmund Norris Gathercoal, Ph. G., Instructor in Pharmacognosy, Wilmette.

Walter Schmitt, Ph. G., Instructor in Chemistry, 465 State Street, Chicago.

HISTORY

The Chicago College of Pharmacy is a corporation which was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. One of the first steps taken was the establishment of a school of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in November, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of the pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the completion and occupation of a building in which ample space for many years' growth was provided. The better accommodation gave an impulse to better work. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chem-

istry, and vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the state through the Illinois Pharmaceutical Association.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the national government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the national government scrip for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign county donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The state legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $2,600,000. In 1890, by passage of a law supplementary to the act of 1862, the congress of the United States provided further appropriations, which now amount to $25,000 annually.

The trustees of the University are nominated in the state conventions, and are elected, together with other state officers, by vote of the citizens of Illinois.

ANNOUNCEMENT

The forty-fourth annual course of instruction in the Chicago College of Pharmacy—the School of Pharmacy of the University of Illinois—will begin Tuesday, September 29, 1903, at ten o'clock in the morning.

The session will continue seven months, closing upon Thursday, April 28, 1904, on which day the graduating exercises will be held.

Aims and Scope

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education cannot be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only

by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

The College Building

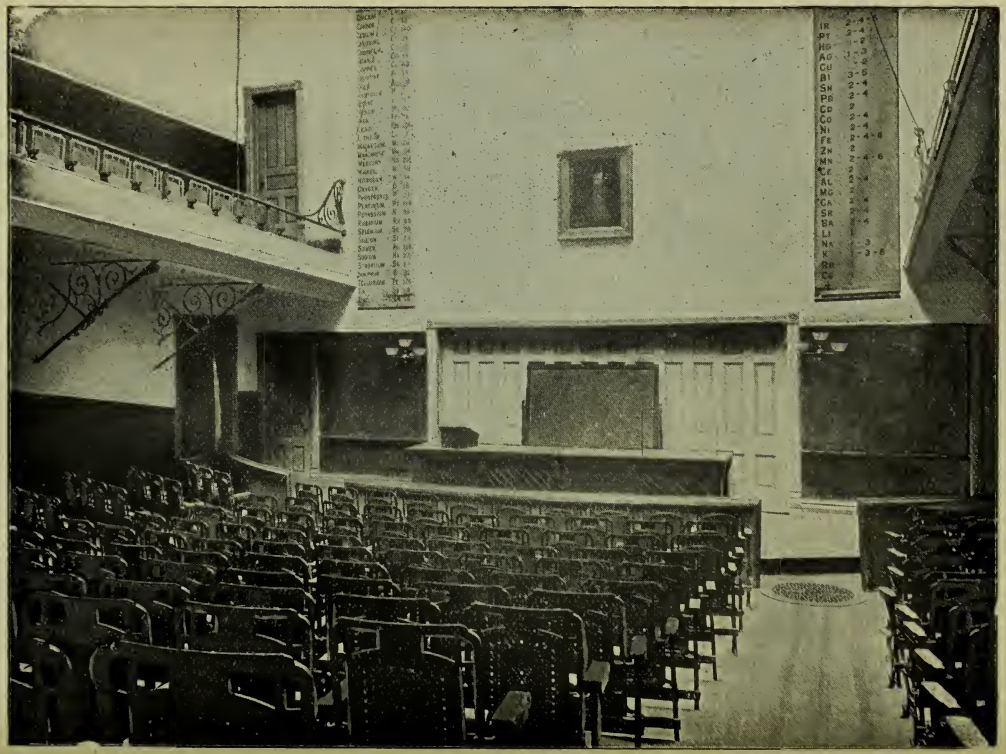
is advantageously located upon State street, near Polk street, close to the center of the business district of the city. Cable-car lines pass the door, the elevated loop is within three blocks, and the principal depots are not far distant, making the college easily accessible from all parts of the city and suburbs. Good board and lodging can be obtained in the vicinity of the school at reasonable rates.

The entire building is devoted to the education of pharmacists. It was designed by practical pharmacists for that purpose, and nothing which experience could suggest was overlooked at the time of its construction.

The Lecture Halls

are two in number, both in ampitheatre form, well lighted and comfortably heated. The larger of these, known as Attfield Hall, has a seating capacity of three hundred and fifty. The smaller will seat half of that number.

Besides these halls, the building contains three laboratories of ample size, an office and reading-room, storerooms, etc.



ATTFIELD HALL—THE LARGER AUDITORIUM

The Pharmaceutical and Chemical Laboratory

is provided with work-stands for ninety-six students, and has four times this number of lock-drawers and of lock-cupboards; so as to accommodate a class of three hundred and eighty-four students divided into four sections, and to allow each student to have his apparatus under lock and key. Aside from the individual kit furnished each student, the laboratory is provided with other chemical apparatus used to demonstrate the operations on a more extended scale. In connection with this room are a weighing-room, store-rooms, fume-chambers, drying-closets, etc.

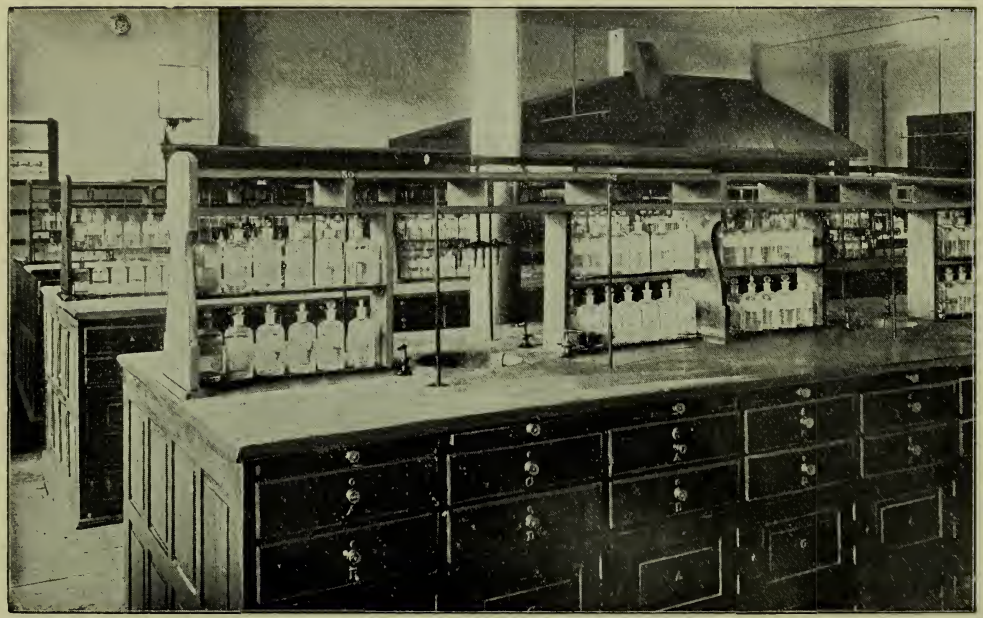
Each work-stand is three feet long and is supplied with water, sink, gas, water-bath, sand-bath, percolators, stand, graduates, funnels, thermometers, specific gravity apparatus, etc.

The Dispensing Laboratory

is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy.

This laboratory occupies the ground floor of the building proper, and contains one hundred and twenty feet of counters and shelf fixtures.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.



A SECTION OF THE PHARMACEUTICAL AND CHEMICAL LABORATORY.

THE MICROSCOPICAL LABORATORY

is situated upon the second floor, and is adapted for classes of forty students. A compound microscope, magnifying from seventy-five to four hundred diameters, is provided for each person. The individual equipment consists of reagents and mounting media, slides, cover glasses, forceps, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, contained in half-gallon bottles, to which students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of 553 specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the southern states and from the far west, may be found in this collection.

THE OFFICE,

in which all the business of the school is transacted by the Actuary and his assistant, is upon the second floor, and serves as a reading room. This room also contains the Library, which, in addition to the regular works of reference, embraces many rare books. New books are constantly being added as the various departments of science progress, and files of all the leading pharmaceutical journals are accessible for the students' perusal.

VIEW OF THE DISPENSING LABORATORY

Requirements for Admission

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

Requirements for Graduation

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this college, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

VIEW OF THE MICROSCOPICAL LABORATORY

Course of Instruction

The course comprises a Junior and a Senior Year each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from six to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound miscroscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR

Pharmacy

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with a thorough exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena,

effects, and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopoeia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures, and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extem-

poraneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

CHEMISTRY

1. *Theoretical Chemistry.* As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed and attention is directed to the atomic theory based thereon. The student is now prepared to intelligently study the use of chemical symbols, formulæ and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout; here particular attention is given to stoichiometry, and in a number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical

compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany

This department embraces Materia Medica, Botany, Vegetable Histology, Microscopy, Pharmacognosy and Physiology.

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy,—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course, the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

SENIOR YEAR

PHARMACY

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the

acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilities, as exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatabilities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

Chemistry

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 19.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all of the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

Materia Medica

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habitats, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year (page 21), this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the miscroscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and miscroscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such

as are typical of the various plant organs are selected for study. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

GENERAL INFORMATION

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

Chemistry.—*Sadtler and Coblentz's Pharmaceutical Chemistry Vol. I,* Dobbin and Walker's Chemical Theory for Beginners, *Puckner's Analytical Chemistry,* Bernthsen's Organic Chemistry, *Prescott and Johnson's Qualitative Analysis,* Coblentz's Volumetric Analysis.

Materia Medica and Botany.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology.*

Pharmacy.—*The Pharmacopoeia,* United States or National Dispensatory, *Remington's Practice of Pharmacy,* Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

Prizes

The Alumni Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains

the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BIROTH PRIZE.—Mr. Henry Biroth offers a prize consisting of a fine compound miscroscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Attendance, attention and general neatness will be taken into account in awarding this prize.

THE HERETH PRIZE.—The Searle & Hereth Company offers a prize consisting of a Troemner analytical balance and weights to the senior student who attains the highest degree of proficiency in Chemistry.

THE BECKER PRIZE.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with a full set of reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highest standing in pharmacy.

FEES AND EXPENSES

No fee is required for matriculation.

TUITION FEES.—The tuition fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

Laboratory Deposit.—Chemical and pharmaceutical apparatus and supplies, together with miscroscopes and other implements required in the work of the course, are furnished by the College without expense to the student, but breakage or damage to apparatus must be paid for, and for this reason each junior and senior student is required to deposit five dollars with the Actuary. This deposit, or such portion of it as is not required for the specified purpose, will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging.—Good board and lodging, within walking distance of the college, can be had for from four to six dollars per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

Selection of Seats

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled.

To enroll it is necessary to fill out the matriculation blank and forward to the Actuary with a payment upon tuition of not less than five dollars. It is of advantage to students to matriculate early.

Opportunities for Employment

While the lectures and the laboratory practice, together with the required study, provide sufficient work to occupy all the time of the average student, yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

State Registration

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized. The diploma of the College is, however, recognized in lieu of examination for registration in about twenty states of the Union.

For further information or for matriculation blank, address

W. B. Day, *Actuary,*
465 State Street, Chicago, Ill.

Or, W. L. Pillsbury, *Registrar,* Urbana, Ill.

GRADUATES, 1903

Degree of Graduate in Pharmacy

William Kilian Ansorge.....Green Bay, Wis.
August Harvey Bauer .....Chicago
Carolyn Francis Beardsley.....Highland Park.
Hal Neuton Calhoun.....Cairo.
John Dixon Charters .....Ashton.
Sidney Alvaro Denis .....Centralia, Wis.
Oscar Albert Fritz.....Chicago.
William G. Hermann Hagemann .....Quincy.
Henry Timothy Hatton.....Montrose, Iowa.
Albert Philip Henke.....Aurora.
Harry Alling Hood.....Chicago Heights.
Otto Hironimus.....Mount Vernon, Ind.
Henry Jurgen Huwald Jeronimus.....Duluth, Minn.
Samuel Vansant Justus .....Chicago.
John Martin Kappus.....Chicago.
Emil Jan Karlovsky.....Chicago.
August John Koepsell.....Mayville, Wis.
Victor Emanuel Lawrence.....Chesterton, Ind.
Charles Stephen Marshall.....Watonga, Okla.
Frederick Hugo Meyer.....Chicago.
Carl Frederick Mick.....Neillsville, Wis.
Walter Raymond Montgomery.....Waterloo, Wis.
George William Pulford.....Savanna.
Joe Griffith Rigg.....Plankinton, S. D.
Charles Henry Schafer.....Marietta, O.
Michael Albert Sheblessy.....Chicago.
Joseph Richard Shinnick.....Watertown, Wis.
Harry Edgar Stadelmann.....Mazomanie, Wis.
Charles Nicholas Storkan.....Wilber, Neb.
Fritz Voss.....Chicago
Harry Withycombe.....Corvallis, Ore.
Ralph Foster Bogue.....(Class of '01) Chicago.
Cyril John Delbridge.....(Class of '01) Chicago.
John William Drewitz.....(Class of '02) La Salle.

Frank William Kraemer.....(Class of '01) Chicago.
Christ Jensen Orbesen.....(Class of '01) Chicago.
Lee Murray Pedigo.....(Class of '02) Chicago.
George Saxe.....(Class of '01) Albion.

CERTIFICATES

The following Senior students received certificates of having finished the course successfully, and will receive the degree when the required age and practical experience are attained:

Lewis Lambert Alkire.....Chalmers, Ind.
Henry John Schmitt.....Chicago.
Henry Stulik .....Chicago.
David Zamentowsky .....Chicago.

HONORS AND PRIZES

Class Honors, Excellence in Scholarship

Senior Class.

William G. Hermann Hagemann,
Harry Edgar Stadelmann,
Charles Henry Schafer,
Harry Withycombe.

Junior Class.

Bertram Louis Breithaupt,
Hugo Julius Schumm,
Ellert George Knudson,
Winfield Scott Hubbard,
Walter Albert Bade,
Raymond Nelson Hards,
Richard Henry Juers,
John George Timmermier,
Chester Aloyze Sankiewicz.

Prizes

August Harvey Bauer.....Biroth Prize
Henry John Schmitt.....Hereth Prize
William G. Hermann Hagemann.....Becker Prize

LIST OF STUDENTS

Session of 1902-1903.

SENIORS.

Alkire, Louis Lambert.....Chalmers, Ind.
Ansorge, William Kilian.....Green Bay, Wis.
Bauer, August Harvey.....Chicago.
Beardsley, Carolyn Frances.....Highland Park.
Bush, Brian B.....Westfall, Ore.
Calhoun, Hal Neuton.....Cairo.
Charters, John Dixon.....Ashton.
Demes, Charles Albert.....Chicago.
Denis, Sidney Alvaro.....Centralia, Wis.
Dilley, George Mansfield.....Shelbyville.
Fritz, Oscar Albert.....Chicago.
Gharet, Ralph Roland.....Birmingham, Ala.
Grubb, Don Wiard.....Galesburg.
Hagemann, William G. Hermann.....Quincy.
Hatton, Henry Timothy.....Montrose, Ia.
Henke, Albert Philip.....Aurora.
Hironimus, Otto.....Mt. Vernon, Ind.
Hood, Harry Alling.....Chicago Heights.
Jeronimus, Henry Jurgen Huwald.....Duluth, Minn.
Justus, Samuel Vansant.....Chicago.
Kappus, John Martin.....Chicago.
Karlovsky, Emil Jan.....Chicago.
Koepsell, August John.....Mayville, Wis.
Koller, Charles John.....Chicago.
Lawrence, Victor Emanuel.....Chesterton, Ind.
Marshall, Charles Stephen.....Watonga, Okla.
Meyer, Fred Hugo.....Chicago.
Meyer, Frank Joseph.....Peoria.
Mick, Carl Frederick.....Neillsville, Wis.
Moffit, Saint John.....Fithian.
Montgomery, Walter Raymond.....Waterloo, Wis.
Overton, Burtis Henrv.....Antioch.
Pulford, George William.....Savanna.
Rettberg, Anton.....Peoria.
Rigg, Joe Griffith.....Plankinton, S. D.
Sanders, Edwin John.....Fort Dodge, Ia.
Schafer, Charles Henry.....Marietta, O.
Schmitt, Henry John.....Chicago.
Shaynin, James.....Chicago.
Sheblessy, Michael Albert.....Chicago.
Shinnick, Joseph Richard.....Watertown, Wis.
Songer, Lloyd A.....Iuka.
Sowka, Andrew William.....Chicago.

Stadelmann, Harry Edgar.....Chicago.
Storkan, Charles Nicholas.....Wilber, Neb.
Stulik, Henry.....Chicago.
Venn, Charles .....Chicago.
Voss, Fritz.....Chicago.
Walz, Fred Charles.....Nashua, Ia.
Withycombe, Harry.....Corvallis, Ore.
Zamentowsky, David.....Chicago.

JUNIORS.

Albright, Guy Stanley.....Chicago.
Anderson, Carl Godfrey.....Chicago.
Atkinson, Rolly Darby.....Converse, Ind.
Bade, Walter Albert.....Wausau, Wis.
Barber, Elmer Clarence.....Chicago.
Beckwith, John Edward.....LaGrange.
Bergstedt, James Peter.....Chicago.
Berthold, Albert Charles.....Aurora.
Bottom, Centennial John.....Sparta.
Breithaupt, Bertram Louis.....Peoria.
Brown, Clyde Alan.....Chicago.
Brown, James Francis.....Chicago.
Chvala, Vincent Joseph.....Chicago.
Coffey, Patrick Francis.....Chicago.
Colby, Oliver Roy.....Litchfield.
Conitz, Leopold Alexander.....Wanatah, Ind.
Converse, Ralph Morris.....Seymour, Ind.
Corbett, Harry Joseph.....Denver, Colo.
Cozad, Delos.....Decatur.
Dickhut, Lawrence August.....Quincy.
Dolejsi, James Edward.....Chicago.
Donahue, Joseph Michael.....Chatsworth.
Dubski, Frank .....Chicago.
Dustin, Leslie Bertrand.....Peoria.
Eberley, Fred Hiram.....Sterling.
Edgar, Arthur Harris.....Chicago.
Gelly, Robert, Jr.....Nokomis.
Ginnsy, Leo Aloysius.....Sublette.
Goltz, John Theodore.....Chicago.
Grinker, Max.....Chicago.
Groer, Otto.....Chicago.
Guerten, George Jacob Joseph.....Madison, Wis.
Hadley, Elmer Walter.....Mt. Carmel.
Hahn, Elmer Orville.....Roberts.
Halpert, Joseph David.....Chicago.
Harding, Frank Robert.....Trivoli.
Hards, Raymond Nelson.....Grand Junction, Colo.
Harnit, Shirley Lamar.....Kankakee

Hartig, John Frederick.....Peoria.
Hartley, Henry Oliver.....Astoria.
Hawk, William Milton Eugene.....Blue Island.
Hearne, William Oscar.....Carbondale.
Higgins, Charles Louis.....Oneida.
Hill, Alvah Lane.....Yorkville.
Hill, Frederick George.....Bellevue, O
Hjelte, John Ewald.....Chicago.
Horner, Charles Henry.....Dixon.
Huard, George Napoleon.....Chicago.
Hubbard, Winfield Scott.....Grand Junction, Colo.
Jacobs, Louis Goodman.....Chicago.
Jewett, Dexter Thomas.....Waverly, Neb.
Johnson, Philip Charles.....South Platte, Colo.
Johnson, Thure William.....Chicago.
Juers, Richard Henry.....Wausau, Wis.
Kann, Harry Henry.....Chicago.
Keusink, William Ben.....Champaign.
Kitch, Enos Holt.....De Soto.
Kleene, Henry Bernhardt.....Peoria.
Knudson, Ellert George.....Chicago.
Koch, Oswin Fred William.....Chicago.
Leiner, William John.....Ottawa.
Lindahl, Anton Emanuel, B.S. (Augustana Coll.), 1902....
.....Wakefield, Neb.
Luken, Edward Emil.....Chicago.
Macham, Forrest David.....Tecumseh, Mich.
Masters, Richard Henry.....Chicago.
Mattix, Charles Edward.....Duluth, Minn.
McMaster, Clyde Allen, B.S. (Univ. of Neb.), 1901.....
.....Pawnee City, Neb.
Mick, John George.....Neillsville, Wis.
Mitchell, William Lewis.....Chicago.
Modaff, John Nick.....Aurora.
Moore, Raymond Teller.....Yorkville.
Moreland, Walter Henry.....Metropolis.
Moss, Harry Semple.....Clinton, Ky.
Nadherny, Louis James.....Chicago
Nelson, Clarence Harry.....Chicago.
Nimmer, Arthur William.....Chicago.
Oeth, Anton Joseph.....Dubuque, Ia.
O'Hara, Guy.....Paris.
Ouda, William.....Chicago.
Parker, George Theodore.....Chicago.
Parker, John Kumler.....Griggsville.
Partington, Elmer.....Chicago.
Porter, George Melville, A.B. (Roger Williams University), 1901.....Columbia, Tenn.

Powell, Charles Edward .....Bangor, Mich.
Pyne, David Joseph Earl .....Chicago.
Reichardt, Herman Albert .....Chicago.
Ryland, Joseph Norvell, A.B. (Bethel Coll.), 1899.Russelville, Ky.
Sandstrom, George .....Chicago.
Sankiewicz, Chester Aloyze .....Chicago.
Schart, Ernest Eugene .....Chicago.
Scheffel, Louis .....Chicago.
Schultejann, Bernard .....Chicago.
Schumm, Hugo Julius .....La Porte, Ind.
Schwanke, Louis Reinhold Arulf.....Hochheim, Wis.
Senger, Peter Xavier .....Danville.
Slater, Charles .....Chicago.
Slauson, Harry Eugene .....Denver, Colo.
Spealman, Harvey L.....Chadwick.
Spiker, Joseph Thomas .....Chicago.
Stahl, August Ferdinand .....Chicago.
Stahlfeld, Leo George .....Chicago.
Stuchlik, Edward .....Chicago.
Timmermier, John George .....Fremont, Neb.
Ulrich, Murble Booker .....Vermilion.
Watson, Harvey Andrew .....Antioch.
Webster, Richard Chauncey .....Canton.
Wenban, Frank James .....Lake Forest.
Westall, William Arnot.....Crystal, N. Dak.
White, George Edwin .....Chicago.
White, Wallis Bernard .....Chicago.
Wilson, Arthur Harrington .....San Angelo, Tex.
Wiltgen, John Peter.....Chicago.
Woods, John Edward .....Chicago.
von Zelewski, Frank George .....Chicago.

SPECIALS.

Bigham, Byrd .....Arcadia, Wis.
Denig, Augustus McClintock .....Elmhurst.
Reinhardt, Carl Frederick .....Roberts.

University of Illinois

THE STATE UNIVERSITY

COLLEGES—*Literature and Arts* (Ancient and Modern Languages and Literatures, Philosophical and Political Science Groups of Studies, Economics, Commerce and Industry). *Engineering* (Architecture, Civil Engineering, Municipal and Sanitary Engineering, Electrical Engineering, Mechanical Engineering, Railway Engineering), *Science* (Astronomy, Botany, Chemistry, Geology, Mathematics, Physics, Physiology, Zoology). *Agriculture* (Animal Husbandry, Agronomy, Dairy Husbandry, Horticulture, Household Science). *Law. Medicine* (College of Physicians and Surgeons, Chicago).

SCHOOLS—Music, Library Science, Pharmacy (Chicago), Dentistry (Chicago), Graduate School, Summer session of nine weeks.

United States Experiment Station, State Laboratory of Natural History, Biological Experiment Station on Illinois River, State Water Survey.

Military Regiment, Military Band, Choral Society, Glee and Mandolin Clubs; Literary, Scientific, and Technical Societies and Clubs; Young Men's and Young Women's Christian Associations.

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University of Illinois School of Pharmacy

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UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY

CHICAGO COLLEGE OF PHARMACY

Michigan Boulevard and Twelfth Street, Chicago, Illinois

SESSION OF 1904-1905

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Frederick Marion Goodman, Ph. G., Dean of the Faculty, Professor of Materia Medica and Botany, Michigan Boulevard and Twelfth Street, Chicago.

Carl Svante Nicanor Hallberg, Ph. G., Professor Theoretical and Practical Pharmacy, 358 Dearborn Street, Chicago.

William August Puckner, Ph. G., Professor of Chemistry, 75 Wells Street, Chicago.

William Baker Day, Ph. G., Secretary of the Faculty, Professor of Histological Botany, Michigan Boulevard and Twelfth Street, Chicago.

Henry Horace Rogers, Ph. B., M. D., Lecturer on Physiology, Highland Park, Ill.

Clyde Mason Snow, Ph. G., Instructor in Pharmacy, 358 Dearborn street, Chicago.

Edmund Norris Gathercoal, Ph. G., Instructor in Pharmacognosy, Wilmette.

Walter Schmitt, Ph. G., Instructor in Chemistry, Michigan Boulevard and Twelfth Street, Chicago.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of the pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building at 465 State street. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry and vegetable histology were now made obligatory. A laboratory devoted entirely to pre-

scription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the State through the Illinois Pharmaceutical Association.

At the close of the last session the University secured for the School of Pharmacy the building formerly occupied by the Chicago Manual Training School, at Michigan boulevard and Twelfth street. The new building provides much more commodious quarters than the School has ever before enjoyed and the facilities for instruction will be greatly increased.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the National Government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the National Government scrip for 480.000 acres of land. In order to secure the location of the University within its borders, Champaign County donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is

$2,600,000. In 1890, by passage of a law supplementary to the act of 1862, the Congress of the United States provided further appropriations, which now amount to $25,000 annually.

The trustees of the University are nominated in the State conventions, and are elected, together with other State officers, by vote of the citizens of Illinois.

ANNOUNCEMENT

The forty-fifth annual course of instruction in the University of Illinois School of Pharmacy—Chicago College of Pharmacy—will begin Tuesday, September 27, 1904, at ten o'clock in the morning.

The session will continue seven months, closing upon Thursday, April 27, 1905, on which day the graduating exercises will be held.

Aims and Scope

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education can not be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

The College Building

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick structure, five stories in height. The building was erected for the Chicago Manual Training School and is, therefore, designed especially for school purposes. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are large windows on four sides, giving excellent light, and the rooms are heated by steam throughout.

The location is an ideal one, near to the center of the city and convenient to the various lines of transportation.

yet removed from the noise and bustle of the business district. Opposite the School is Grant Park, in which is located the Art Institute and where the Field Museum and the Crerar Library will soon be permanently placed. In addition to the attractions offered by these institutions, the park itself provides a splendid playground.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city. Satisfactory accommodations may be readily secured within a short distance of the School.

The Lecture Halls

Are four in number and are arranged one above the other, occupying the entire east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to five hundred persons. These halls have both south and east light from many windows and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture halls and laboratories devoted to the same subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the entire second floor.

The Laboratories

Are six in number, including a laboratory for qualitative

analysis, for quantitative analysis, for advanced chemistry, for pharmacognosy, for general pharmacy and for dispensing.

The Laboratory for Qualitative Analysis

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards so as to accommodate a class of two hundred and eighty-eight students, divided into four sections, and to allow each student to have his apparatus under lock and key. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

The Laboratory for Quantitative Analysis

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of the building and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use and a well selected chemical library is freely accessible to students.

The Laboratory for Advanced Chemistry

Is 21 by 40 feet in size, has excellent light and will be equipped for classes of thirty students. This laboratory is intended chiefly for students who may desire special or post-graduate work.

The Laboratory for Pharmacognosy

Is 26 by 51 feet in size, is situated on the third floor, is well lighted and has ample blackboard space. Desks are provided for sixty-eight students. Fifty compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, scalpel and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, contained in half-gallon bottles, to which students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this College. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the Southern States and from the far West may be found in this collection.

The Laboratory for General Pharmacy

Occupies a room 43 by 51 feet in size and situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each

work-stand is four feet long and is equipped with water, sink, sand bath, gas and steam, as well as retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jars, bunsen burners, etc. Collections of chemical and pharmaceutical products, interesting files of prescriptions and a complete working library are also to be found here.

The Dispensing Laboratory

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet in size and is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well arranged prescription department of a pharmacy.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.

The Office,

In which all the business of the School is transacted by the Actuary and his assistant, is situated on the first floor, just east of the main entrance to the building.

The Library

Adjoins the office and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books. Complete files of the leading pharmaceutical periodicals form an important feature of

the library and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference provide a valuable index to these files.

The Students' Reading Room

Is suitably equipped with tables and chairs and contains the current numbers of the pharmaceutical periodicals conveniently accessible for the use of students. A sufficient number of steel lockers with combination locks are provided for the use of students in caring for coats, hats and books.

The Gymnasium

The east end of the high basement will be fitted up as a gymnasium for the use of students and will be furnished with the usual equipment.

Requirements for Admission

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

Requirements for Graduation

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in

some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this College, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

Course of Instruction

The course comprises a Junior and a Senior Year, each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from six to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR

Pharmacy

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with a thorough exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopoeia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in

the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

CHEMISTRY

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to intelligently study the use of chemical symbols, formulæ and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads

to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout; here particular attention is given to stoichiometry, and in a number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany

This department embraces Materia Medica, Botany, Vegetable Histology, Microscopy, Pharmacognosy and Physiology.

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

SENIOR YEAR

PHARMACY

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities indicating

their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilities, as exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including

triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

Chemistry

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 20.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all of the volumetric tests required by the

pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

Materia Medica

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habitats, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior

Year (page 21), this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are typical of the various plant organs are selected for study. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

GENERAL INFORMATION

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

CHEMISTRY.—*Sadtler and Coblentz's Pharmaceutical Chemistry Vol. I,* Dobbin and Walker's Chemical Theory for Beginners, *Puckner's Analytical Chemistry,* Bernthsen's Organic Chemistry, *Prescott and Johnson's Qualitative Analysis,* Coblentz's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology.*

PHARMACY.—The Pharmacopœia, United States or National Dispensatory, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

PRIZES

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BIROTH PRIZE.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Attendance, attention and general neatness will be taken into account in awarding this prize.

THE HERETH PRIZE.—The Searle & Hereth Company offers a prize consisting of a Troemner analytical balance

and weights to the senior student who attains the highest degree of proficiency in Chemistry.

THE BECKER PRIZE.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with a full set of reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highest standing in pharmacy.

FEES AND EXPENSES

MATRICULATION.—The fee for matriculation is five dollars and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuïtion fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College without expense to the student, but breakage or damage to apparatus must be paid for, and for this reason each junior and senior student is required to deposit ten dollars with the Actuary. This deposit, or such portion of it as is not required for the

specified purpose, will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging.—Good board and lodging, within walking distance of the college, can be had for from four to six dollars per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

Selection of Seats

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to students to matriculate early.

Opportunities for Employment

While the lectures and the laboratory practice, together with the required study, provide sufficient work to occupy all the time of the average student, yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

State Registration

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized. The diploma of the College is, however, recognized in lieu of examination for registration in about twenty states of the Union.

For further information or for matriculation blank, address

W. B. Day, *Actuary,*

Michigan Boulevard and Twelfth Street, Chicago, Ill.

Or, W. L. Pillsbury, *Registrar,* Urbana, Ill.

GRADUATES, 1904

Degree of Graduate in Pharmacy

Guy Stanley Albright ..... Chicago
Walter Albert Bade ..... Plymouth, Wis.
Harry Frederick Behrensmeyer ..... Quincy
James Peter Bergstedt ..... Chicago
Vincent W. J. Chvala ..... Chicago
Albert Henry Clark ..... Springfield
Oliver Roy Colby ..... Litchfield
Ralph Morris Converse ..... Seymour, Ind.
Delos Cozad ..... Decatur
Joseph Michael Donahue ..... Chatsworth
Robert W. Gelly ..... Nokomis
Elmer Walter Hadley ..... Mt. Carmel
John Frederick Hartig ..... Peoria
Henry Oliver Hartley ..... Astoria
Charles Louis Higgins ..... Oneida
Alvah Lane Hill ..... Yorkville
Richard Henry Juers ..... Wausau, Wis.
William Benardus Keusink ..... Champaign
Ellert George Knudson ..... Chicago
Charles John Koller ..... Chicago
Anton Emanuel Lindahl ..... Wakefield, Neb.
William Lewis Mitchell ..... Chicago
John Nick Modaff ..... Aurora
Louis James Nadherny ..... Chicago
Anton Joseph Oeth ..... Dubuque, Iowa
Philo Hoysradt Ozanne ..... Tempe, Ariz.
George Melville Porter ..... Columbia, Tenn.
Edwin John Sanders ..... Fort Dodge, Iowa
Chester Aloyze Sankiewicz ..... Chicago
Louis R. A. Schwanke ..... Chicago
Peter Xavier Senger ..... Danville
James Shaynin ..... Chicago
Edward Stuchlik ..... Chicago
John George Timmermier ..... Fremont, Neb.
Murble Booker Ulrich ..... Vermilion
Richard Chauncey Webster ..... Canton
Charles Odus Bowman (Class of '02) ..... Wathena, Kan.
Frederick Andrew Brown (Class of '02) ..... Marseilles
Arthur Leroy Hamley (Class of '02) ..... Sprague, Wash.
Carl Dilly McClenahan (Class of '02) ..... Chicago
Charles John Welker (Class of '02) ..... Chicago
Henry John Schmitt (Class of '03) ..... Chicago
Henry Stulik (Class of '03) ..... Chicago

CERTIFICATES

The following Senior students received certificates of having finished the course successfully, and will receive the degree when the required age and practical experience are attaind:

Bertram Louis Breithaupt.....Peoria
Clyde Alan Brown.....Chicago
Charles Demes .....Chicago
Raymond Nelson Hards.....Grand Junction, Colo.
Winfield Scott Hubbard .....Grand Junction, Colo.
Philip Charles Johnson.....South Platte, Colo.
William John Leiner.....Ottawa
Forrest David Macham.....Tecumseh, Mich.
Charles Edward Mattix.....Duluth, Minn.
Stanley Rensselaer Pattison.....Monmouth
Charles Edward Powell.....Bangor, Mich.
Hugo Julius Schumm.....La Porte, Ind.
Charles Venn .....Chicago
Harvey Andrew Watson .....Chicago

HONORS AND PRIZES

Class Honors, Excellence in Scholarship

Senior Class.

James Shaynin,
Albert Henry Clark,
Bertram Louis Breithaupt,
Raymond Nelson Hards,
Walter Albert Bade,
Edwin John Sanders.

Junior Class.

John Henry Rettig,
Charles William Boyce,
Hugo Franz Staack,
Thomas Lewis Larson,
Frank Mayfield,
William Vincent Dufner,
James Patejdl,
Louis W. Plummer,
Harvey Weinschenk,
Edward Benjamin Jacobs,
John Kumler Parker,
Herman Ferdinand Jacob.

Prizes

James Shaynin.....Alumni Medal
Charles Edward Powell.....Biroth Prize
James Shaynin .....Hereth Prize
Albert Henry Clark.....Becker Prize

LIST OF STUDENTS

Session of 1904-1905.

SENIORS.

Albright, Guy Stanley.....Chicago
Atkinson, Rolly Darby.....Chicago
Bade, Walter Albert.....Plymouth, Wis.
Barber, Elmer Clarence.....Chicago
Behrensmeyer, Harry Frederick.....Quincy
Bergstedt, James Peter.....Chicago
Breithaupt, Bertram Louis .....Peoria
Brown, Clyde Alan.....Chicago
Brown, James Francis.....Chicago
Chvala, Vincent W. Joseph.....Chicago
Clark, Albert Henry.....Springfield
Colby, Oliver Roy.....Litchfield
Converse, Ralph Morris.....Seymour, Ind.
Cozad, Delos .....Decatur
Demes, Charles .....Chicago
Donahue, Joseph Michael.....Chatsworth
Dustin, Leslie Bertrand .....Peoria
Eberley, Fred Hiram .....Sterling
Gelly, Robert W., Jr.....Nokomis
Ginnsy, Leo Aloysius .....Sublette
Gold, Morris.....Chicago
Hadley, Elmer Walter.....Mt. Carmel
Halpert, Joseph David.....Chicago
Hards, Raymond Nelson .....Grand Junction, Colo.
Hartig, John Frederick.....Peoria
Hartley, Henry Oliver .....Astoria
Higgins, Charles Louis.....Oneida
Hill, Alvah Lane .....Yorkville
Hubbard, Winfield Scott .....Grand Junction, Colo.
Johnson, Philip Charles .....South Platte, Colo.
Juers, Richard Henry .....Wausau, Wis.
Keusink, William Benardus.....Champaign
Kitch, Enos Holt.....De Soto
Knudson, Ellert George.....Chicago
Koch, Oswin Fred William.....Chicago
Koller, Charles John.....Chicago
Leiner, William John.....Ottawa
Lindahl, Anton Emanuel, B. S. (Augustana Coll.), 1902....
.....Wakefield, Neb.
McMaster, Clyde Allen, B. S. (Univ. of Neb.), 1901.....
.....Pawnee City, Neb.
Macham, Forrest David.....Tecumseh, Mich.
Mattix, Charles Edward.....Duluth, Minn.
Mitchell, William Lewis .....Chicago

Modaff, John Nick ..... Aurora
Moss, Harry Semple ..... Clinton, Ky.
Nadherny, Louis James ..... Chicago
Nelson, Clarence Harry ..... Chicago
Oeth, Anton Joseph ..... Dubuque, Iowa
Ozanne, Philo Hoysradt ..... Tempe, Ariz.
Pattison, Stanley Rensselaer ..... Monmouth
Porter, George Melville, A. B. (Roger Williams Univ.), 1901 ..... Columbia, Tenn.
Powell, Charles Edward ..... Bangor, Mich.
Sanders, Edwin John ..... Fort Dodge, Iowa
Sankiewicz, Chester Aloyze ..... Chicago
Schumm, Hugo Julius ..... La Porte, Ind.
Schwanke, Louis Reinhold Arulf ..... Hochheim, Wis.
Senger, Peter Xavier ..... Danville
Shaynin, James ..... Chicago
Slauson, Harry Eugene ..... Denver, Colo.
Stahl, August Ferdinand ..... Chicago
Starkey, James Fred ..... Pesotum
Stuchlik, Edward ..... Chicago
Timmermier, John George ..... Fremont, Neb.
Ulrich, Murble Booker ..... Vermilion
Venn, Charles ..... Chicago
Watson, Harvey Andrew ..... Antioch
Webster, Richard Chauncey ..... Canton
Wiltgen, John Peter ..... Chicago
von Zelewski, Frank George ..... Chicago

JUNIORS.

Aaseth, Carl Martin ..... Gayville, S. D.
Alexa, Anton Joseph ..... Chicago
Angne, William Bertram ..... Chicago
Argraves, Eber Delos ..... Sterling
Bartkowski, John Sergius ..... Chicago
Berthlein, Fred ..... Chicago
Betourne, Amedee Thomas ..... Kankakee
Biermann, Clifford John ..... Cincinnati, Ohio
Billiekin, Abraham E ..... Chicago
Bilyeu, Fred McKinney ..... Pocahontas
Boltz, Charles ..... Chicago
Bottom, Centennial John ..... Sparta
Bourland, Allen Newton ..... Equality
Boyce, Charles William ..... Chicago
Brehmer, Otto ..... Wausau, Wis.
Burdick, Merle Masson ..... Edelstein
Burger, Russell ..... Beloit, Wis.
Collins, Archibald Matt ..... Chicago
Christman, Edgar H ..... Shelbyville
Christman, Homer ..... Shelbyville

Curtis, Arthur E.....Rock Falls
Dale, Gustav Garfield.....Sullivan, Ind.
Detrick, Leo George.....Chicago
Diebold, William Harold.....Springfield
Dillow, Guy Garland .....Dongola
Dolejsi, James Edward.....Chicago
Donnelly, Christopher John.....Chicago
Dufner, William Vincent .....Peoria
Fallis, Perry Leroy.....Chicago
Fox, Leonard Berry.....Chicago
Frank, Charles.....Minot, N. D.
Gaulthier, Charles Desire.....Green Bay, Wis.
Gerhardt, August Edward.....Springfield
Goetsche, Walter George .....Quincy
Goodman, Isaac .....Chicago
Graziadei, George Sebastian.....Chicago
Hall, John Ross.....Bloomington
Henderson, Josiah Carroll.....Atlantic City, N. J.
Hisgen, Fred Joseph.....Chicago
Honsik, James Michael.....Chicago
Howes, Lincoln.....Bloomington
Hunter, James Chester .....Warren, Ohio
Indovina, Michael .....Chicago
Jacob, Herman Ferdinand .....Oak Park
Jacobs, Edward Benjamin.....Chicago
Johnson, Milton .....Chicago
Joyce, Edward .....Chicago
Kerstine, Brun Harry .....Ashley
Kroll, Francis, Jr.....Chicago
Laatz, John Ernest.....Chicago
Lapham, Elah Adalbert.....Nekoosa, Wis.
Larson, Thomas Lewis .....Kasson, Minn.
Lenz, Charles Frederick.....Marietta, Ohio
Levin, Justine Aaron.....Chicago
Longshore, William Henry.....Grand Junction, Colo.
Lukasek, Edward Albert.....Chicago
McCall, Charles Edward.....Chicago
McGinley, Ebner.....Moweaqua
McGuinn, Frank Thomas.....Rock Island
Mackrodt, John James.....Peru
Masters, Richard Henry.....Chicago
Mauro, Edmund .....Chicago
Mayfield, Frank .....Mt. Vernon
Mesirow, Nathan .....Chicago
Meyer, James Blane.....Rensselaer, Ind.
Meyerowitz, Morris Joseph.....Chicago
Moreland, Walter Henry, Jr.....Metropolis
Newman, Robert.....Chicago

Newsome, Robert Emmet.....Chicago
Niece, Raymond Perry.....Terre Haute, Ind.
Olzewski, Edward.....Chicago
O'Neill, Garrett James.....Evanston, Wyo.
Ostrowski, Loenard Joseph.....Hammond, Ind.
Parker, Leslie Frank.....Chicago
Parker, John Kumler.....Griggsville
Patejdl, James .....Chicago
Pick, Rose Kraus .....Chicago
Pocock, Thomas Grover.....Crestline, Ohio
Powell, Charles Joseph.....Kenton, Tenn.
Plummer, Louis W.....Chicago
Ratkowski, Frank.....Chicago
Rettig, John Henry.....Quincy
Robinson, John William.....Peru
Roth, Abraham .....Chicago
Sangermann, William Edward.....Chicago
Sass, Stefan Konrad.....Chicago
Scheips, Theodore Immanuel.....Peru, Ind.
Schrepel, Oliver Henry.....Ellinwood, Kan.
Secord, George Louis.....Chicago
Seifreid, George William.....Chicago
Seibrandt, Martin John.....Merrill, Wis.
Shisler, Edward Clarence.....Chicago
Slater, David Ralph.....Peoria
Smith, Lester Raymond.....West Middletown, Pa.
Smith, Robert Charles .....Chicago
Staack, Hugo Franz .....Maquoketa, Iowa
Staehling, George .....Chicago
Stuelke, Arthur .....Oshkosh, Wis.
Stuker, Conrad Stephen.....Chicago
Taylor, Adalbert Brink.....Cuba
Topisovsky, Henry .....Chicago
Tracy, Bert Ross.....Elgin
Trump, George Frederick.....Ellinwood, Kan.
Vogt, Walter Frank.....Milwaukee, Wis.
Weeks, Frederick William.....Chicago
Wehrley, John Henry.....Chicago
Weinschenk, Harvey.....Chicago
Wells, Frances Ellsworth.....Peotone
Wile, Thomas Hudson.....Texarkana, Tex.
Williams, Arthur Henry.....Elwood
Wilson, Milton Grundy.....Lostant
Windmueller, Rudolph Leopold Franz.....Chicago
Winters, Frank Herman.....Chicago
Wolinsky, Joseph.....Chicago
Zelt, John Homer.....Chicago
Zukowski, John Leon.....Chicago

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University of Illinois School of Pharmacy

CHICAGO COLLEGE OF PHARMACY

ANNOUNCEMENT
1905-1906

REGISTER FOR 1904-1905

COLLEGE CALENDAR

1905.

Junior Lectures begin.	Tuesday,	Sept. 26
Senior Lectures begin.	Wednesday,	Sept. 27,
Senior Laboratories open.	Friday,	Sept. 29,
Junior Laboratories open.	Saturday,	Sept. 30.
Thanksgiving Day. Holiday.	Thursday,	Nov. 30.
Last Session before the Holidays.	Wednesday,	Dec. 20.

1906

Instruction resumed.	Thursday,	Jan. 4,
Lincoln's Birthday. Holiday.	Monday,	Feb. 12.
Washington's Birthday. Holiday.	Thursday,	Feb. 22.
Senior Laboratories close.	Friday,	April 6,
Junior Laboratories close.	Saturday,	April 7,
Senior Lectures end.	Friday,	April 13,
Junior Lectures end.	Saturday,	April 14,
Final Examinations.	Monday,	April 16,
Final Examinations.	Tuesday,	April 17,
Final Examinations.	Wednesday,	April 18,
Forty-fifth Commencement.	Thursday,	April 26,
Botanical Excursion.	Thursday,	May 3,
Botanical Excursion.	Thursday,	May 10,
Botanical Excursion.	Thursday,	May 24,
Botanical Excursion.	Thursday,	June 7,
Botanical Excursion.	Thursday,	June 21,

NOTE.—Botanical Excursions are free to students and graduates. Those desiring to attend these excursions will, at the close of the term, notify the Actuary, who will, before each excursion, notify them of the time and place.

THE COLLEGE BUILDING.

FORTY-SIXTH ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY

CHICAGO COLLEGE OF PHARMACY

Michigan Boulevard and Twelfth Street, Chicago, Illinois

SESSION OF 1905-1906

REGISTER FOR 1904-1905

CHICAGO . . . PUBLISHED BY THE UNIVERSITY

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FACULTY

1904-05.

Edmund J. James, Ph. D., LL. D., President of the University, Urbana.

Frederick Marion Goodman, Ph. G., Dean of the Faculty, Professor of Materia Medica and Botany, Michigan Boulevard and Twelfth Street, Chicago.

Carl Svante Nicánor Hallberg, Ph. G., Professor of Theoretical and Practical Pharmacy, 357 Dearborn Street, Chicago.

William August Puckner, Ph. G., Professor of Chemistry, 75 Wells Street, Chicago.

William Baker Day, Ph. G., Secretary of the Faculty, Professor of Histological Botany, Michigan Boulevard and Twelfth Street, Chicago.

Henry Horace Rogers, Ph. B., M. D., Lecturer on Physiology, Highland Park.

Clyde Mason Snow, Ph. G., Instructor in Pharmacy, 357 Dearborn Street, Chicago.

Edmund Norris Gathercoal, Ph. G., Instructor in Pharmacognosy, Wilmette.

Walter Schmitt, Ph. G., Instructor in Chemistry, Michigan Boulevard and Twelfth Street, Chicago.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of the pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which, in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building at 465 State street. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Laboratory courses in pharmacy, chemistry and vegetable histology

were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the State through the Illinois Pharmaceutical Association.

On the first of May, 1904, the University secured for the School of Pharmacy the building formerly occupied by the Chicago Manual Training School, at Michigan boulevard and Twelfth street. The new building provides much more commodious quarters than the School has ever before enjoyed and the facilities for instruction have been greatly increased.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the National Government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the National Government scrip for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign County donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has, from time to time, appropriated various sums for perma-

nent improvements, as well as for maintenance. The present value of the entire property is $2,600,000. In 1890, by passage of a law supplementary to the act of 1862, the Congress of the United States provided further appropriations, which now amount to $25,000 annually.

The trustees of the University are nominated in the State conventions, and are elected, together with other State officers, by vote of the citizens of Illinois.

ANNOUNCEMENT

The forty-sixth annual course of instruction in the University of Illinois School of Pharmacy—Chicago College of Pharmacy—will begin Tuesday, September 26, 1905, at ten o'clock in the morning.

The session will continue seven months, closing upon Thursday, April 26, 1906, on which day the graduating exercises will be held.

Aims and Scope

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education can

not be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finnished at the School of Pharmacy.

The College Building

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick structure, five stories in height. The building was designed especially for school purposes. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are large windows on four sides, giving excellent light, and the rooms are heated by steam throughout.

The location is an ideal one, near to the center of the city and convenient to the various lines of transportation, yet removed from the noise and bustle of the business district. Opposite the School is Grant Park, in which is located the Art Institute and where the Field Museum and the Crerar Library will soon be permanently placed. In addition to the attractions offered by these institutions, the park itself provides a splendid playground.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city. Satisfactory accommodations may be readily secured within a short distance of the School.

The Lecture Halls

Are four in number and are arranged one above the other, occupying the entire east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to three hundred persons. These halls have both south and east light from many windows and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture halls and laboratories devoted to the same subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the entire second floor.

The Laboratories

Are six in number, including a laboratory for qualitative analysis, for quantitative analysis, for advanced chemistry, for pharmacognosy, for general pharmacy and for dispensing. The total capacity of these laboratories is sufficient for the accommodation of 332 students, working at one time.

The Laboratory for Qualitative Analysis

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards so as to accommodate a class of two hundred and eighty-eight students, divided into four sections, and to allow each student to have his apparatus under lock and key. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

The Laboratory for Quantitative Analysis.

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of the building and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use and a well selected chemical library is freely accessible to students.

The Laboratory for Advanced Chemistry

Is 21 by 40 feet in size, has excellent light and will be equipped for classes of thirty students. This laboratory is intended chiefly for students who may desire special or post-graduate work.

The Laboratory for Pharmacognosy

Is 26 by 51 feet in size, is situated on the third floor, is well lighted and has ample blackboard space. Desks are provided for sixty-eight students. Fifty compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, scalpel and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and his assistants during his connection with the botanical department of this College. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the Southern States and from the far West may be found in this collection.

The Laboratory for General Pharmacy

Occupies a room 43 by 51 feet in size and situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jars, bunsen burners, florence flasks, worm-condenser, mortars, etc. Collections of chemical and pharmaceutical products, interesting files of prescriptions and a complete working library are also to be found here.

The Dispensing Laboratory

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet in size and is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well arranged prescription department of a pharmacy. The laboratory will accommodate classes of forty students working at once.

Portions of these fixtures were exhibited at the World's Fair and were especially commended.

The Office,

In which all the business of the School is transacted by

the Actuary and his assistant, is situated on the first floor, just east of the main entrance to the building.

The Library

Adjoins the office and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books. Complete files of the leading pharmaceutical periodicals form an important feature of the library and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference provide a valuable index to these files.

The Students' Reading Room

Is suitably equipped with tables and chairs and contains the current numbers of the pharmaceutical periodicals conveniently accessible for the use of students. A sufficient number of steel lockers with combination locks are provided for the use of students in caring for coats, hats and books.

Requirements for Admission

Applicants for admission must be at least sixteen years of age, and must furnish evidence of their ability to prosecute the work of the course successfully.

The preliminary education should be equivalent to that required for entrance to a good high school.

Advanced Standing

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

Requirements for Graduation

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this College, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

Course of Instruction

The course comprises a Junior and a Senior Year, each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from seven to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR

PHARMACY

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils, and devices employed in pharmaceutical practice. Heat, its sources and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopœia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the National Formulary and those of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One

or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

Chemistry

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new sub-

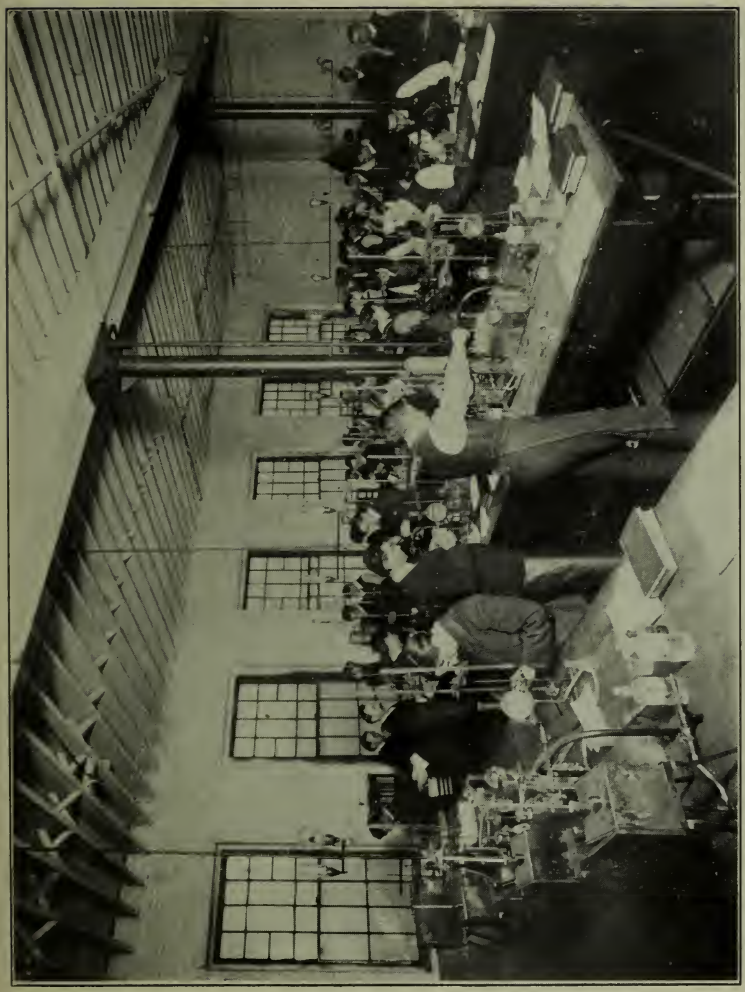
stances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulæ and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout; here particular attention is given to stoichiometry, and in a number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

THE MICROSCOPICAL LABORATORY.

THE QUALITATIVE ANALYTICAL LABORATORY.



THE QUANTITATIVE ANALYTICAL LABORATORY.

THE GENERAL PHARMACEUTICAL LABORATORY.

Materia Medica and Botany

This department embraces Materia Medica, Botany, Vegetable Histology, Microscopy, Pharmacognosy and Physiology.

1. *Botany.* The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoölogical order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symp-

toms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.* This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

SENIOR YEAR

PHARMACY

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those

requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of incompatibilities, as exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all

ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology, and the finishing of packages are features of the exercises.

CHEMISTRY

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 18.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all of the volumetric tests required by the pharmacopœa. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

Materia Medica

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habits, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœa, but to all used domestically, properly within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year (page 24), this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are typical of the various plant organs are selected for study. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

Special Lectures on Business Topics

A series of special lectures, one each week, will be given during the session, and will be free to students of both classes. The course will include: methods of book-keeping especially suited to the retail drug store; the advantageous buying of goods; hints on pricing and estimating cost; discounts, drafts and credits; the handling and sale of such side-lines as are usually found in drug stores; window displays; advertising methods, etc. The lectures will be given by pharmacists of the city and by experts in the various subjects. The course will be under the supervision of the Advisory Board.

GENERAL INFORMATION

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of

them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

CHEMISTRY.—*Sadtler and Coblentz's Pharmaceutical Chemistry,* Vol. I, Dobbin and Walker's Chemical Theory for Beginners, *Puckner's Analytical Chemistry,* Bernthsen's Organic Chemistry, *Prescott and Johnson's Qualitative Analysis,* Coblentz's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology.*

PHARMACY.—The Pharmacopœia, United States or National Dispensatory, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

PRIZES

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BIROTH PRIZE.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Scholarship, attendance, attention and general neatness will be taken into account in awarding this prize.

THE SEARLE AND HERETH PRIZE.—The Searle & Hereth Company offers a prize consisting of a complete set of the Proceedings of the American Pharmaceutical Association and nomination to membership in the Association, to the senior student who attains the highest degree of proficiency in chemistry.

THE BECKER PRIZE.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highest standing in pharmacy.

FEES AND EXPENSES

MATRICULATION.—The fee for matriculation is five dollars and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuition fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are

furnished by the College without expense to the student, but breakage or damage to apparatus must be paid for, and for this reason each junior and senior student is required to deposit ten dollars with the Actuary. This deposit, or such portion of it as is not required for the specified purpose, will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging. Good board and lodging, within walking distance of the college, can be had for from four to six dollars per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

Selection of Seats

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll, junior students will fill out the matriculation

blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to students to matriculate early.

Opportunities for Employment

While the lectures and the laboratory practice, together with the required study, provide sufficient work to occupy all the time of the average student, yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are, among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to six dollars per week.

State Registration

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized. The diploma of the College is, however, recognized in lieu of examination for registration in about twenty states and territories.

For further information or for matriculation blank, address

W. B. Day, *Actuary,*

Michigan Boulevard and Twelfth Street, Chicago, Ill.
Or, W. L. Pillsbury, *Registrar,* Urbana, Ill.

GRADUATES, 1905

Degree of Graduate in Pharmacy

Carl Martin Aaseth.....Gayville, S. D.
Benjamin Robert Abrams.....Butler, Ind.
Carl Godfrey Anderson.....Chicago
Frederick L. G. Berthlein.....Chicago
Arthur E. Curtis.....Rock Falls
Lawrence August Dickhut.....Quincy
Guy Garland Dillow.....Dongola
William Vincent Dufner.....Peoria
August Edward Gerhardt.....Springfield
George J. J. Guerten.....Madison, Wis.
Michael Indovina.....Chicago
Herman Ferdinand Jacob.....Oak Park
Milton Johnson.....Chicago
Thure William Johnson.....Chicago
Thomas Lewis Larson.....Kasson, Minn.
John Victor Lee.....Evanston
Justin Aaron Levin.....Chicago
William Henry Longshore.....Grand Jct., Colo.
Walter Henry Moreland Jr.....Metropolis
Leonard Joseph Ostrowski.....Hammond, Ind.
Louis W. Plummer.....Chicago
Theodor Immanuel Scheips.....Peru, Ind.
Bernard Hermann Schultejann.....Chicago
John Martin Siebrandt.....Merrill, Wis.
Harry Eugene Slauson.....Denver, Colo.
Hugo Franz Staack.....Maquoketa, Iowa
John Herman Wehrley.....Chicago
Thomas Hudson Wile.....Texarkana, Texas
Walter Hines Whisenant (Class of '01)...San Antonio, Texas
Lewis Lambert Alkire (Class of '03).....Denver, Colo.
David Zamentowsky (Class of '03).....Chicago
Bertram Louis Breithaupt (Class of '04)..Peoria
Raymond Nelson Hards (Class of '04)....Grand Jct., Colo.
Philip Charles Johnson (Class of '04)....South Platte, Colo.
Forrest David Macham (Class of '04)....Tecumseh, Mich.
Charles Edward Mattix (Class of '04.....Duluth, Minn.
Stanley Rensselaer Pattison (Class of '04).Monmouth
Charles Edward Powell (Class of '04)...Kalamazoo, Mich.

CERTIFICATES

The following Senior students received certificates of having finished the course successfully, and will receive the degree when the required age and practical experience are attained:

Charles William Boyce.....Chicago
James Francis Brown.....Chicago
Leo George Detrick.....Chicago
John Ross Hall.....Bloomington
William Milton Eugene Hawk.....Kittanning, Pa.
James Michael Honsik.....Chicago
Edward Albert Lukasek.....Chicago
Ebner McGinley .....Moweaqua
R. Frank Mayfield .....Mt. Vernon
Garret James O'Neill.....Evanston, Wyo.
John Kumler Parker.....Griggsville
James Patejdl .....Chicago
Frances Ellsworth Wells .....Peotone
Milton Grundy Wilson.....Lostant

HONORS AND PRIZES

CLASS HONORS, EXCELLENCE IN SCHOLARSHIP

Senior Class.

Hugo Franz Staack
William Vincent Dufner
William Henry Longshore
Lawrence August Dickhut
Thomas Lewis Larson
Charles William Boyce
Louis W. Plummer
James Patejdl
Frank Mayfield

Junior Class.

Claude Enoch Tilton
Ethelyn Belle Arnold
Wilbur Grimes
Charles Desire Gauthier
Albert G. C. Ackermann
Walter Simonds Mayhew
Fred M. F. Meixner
Paul Seyfert
Rolf Reite
George Eisele
Ralph Milton Eberly
Loren Milton Haeseler
Otto Shatzkis
Walter Edward Anderson
William Kraemer.

Prizes.

Hugo Franz Staack .....Alumni Medal
William Vincent Dufner .....Becker Prize
Hugo Franz Staack.....Hereth Prize
James Francis Brown.....Biroth Microscope

LIST OF STUDENTS

Session of 1904-1905.

SENIORS.

Aaseth, Carl Martin,	*Grayville, S. Dak.*
Abrams, Benjamin Robert,	*Butler, Ind.*
Anderson Carl Godfrey,	*Chicago.*
Berthlein, Fred,	*Chicago.*
Boyce, Charles William,	*Chicago.*
Brown, James Francis,	*Chicago.*
Curtis, Arthur E.,	*Rock Falls.*
Detrick, Leo George,	*Chicago.*
Dickhut, Lawrence August,	*Quincy.*
Dillow, Guy Garland,	*Dongola.*
Dufner, William Vincent,	*Peoria.*
Fallis, Perry Leroy,	*Chicago.*
Gerhardt, August Edward,	*Springfield.*
Guerten, George Jacob Joseph,	*Madison, Wis.*
Hall, John Ross,	*Bloomington.*
Hawk, William Milton Eugene,	*Kittanning, Pa.*
Honsik, James Michael,	*Chicago.*
Indovina, Michael,	*Chicago.*
Jacob, Herman Ferdinand,	*Oak Park.*
Johnson, Milton,	*Chicago.*
Johnson, Thure William,	*Chicago.*
Koch, Oswin Fred William,	*Chicago.*
Laatz, John Ernest,	*Chicago.*
Larson, Thomas Lewis,	*Kasson, Minn.*
Lee, John Victor,	*Evanston.*
Lenz, Charles Frederick,	*Marietta, Ohio.*
Levin, Justin Aaron,	*Chicago.*
Longshore, William Henry,	*Grand Junction, Colo.*
Lukasek, Edward Albert,	*Chicago.*
McGinley, Ebner,	*Moweaqua.*
Mayfield, R. Frank,	*Mt. Vernon.*
Mick, John George,	*Neillsville, Wis.*
Moreland, Walter Henry,	*Metropolis.*
O'Neill, Garrett James,	*Evanston, Wyo.*
Ostrowski, Leonard Joseph,	*Hammond, Ind.*
Parker, John Kumler,	*Griggsville.*
Patejdl, James,	*Chicago.*
Plummer, Louis W.,	*Chicago.*
Powell, Charles Joseph,	*Kenton, Tenn.*
Scheips, Theodore Immanuel,	*Peru, Ind.*
Schultejann, Bernard,	*Chicago.*
Siebrandt, Martin John,	*Merrill, Wis.*
Slauson, Harry Eugene,	*Denver, Colo.*
Staack, Hugo Franz,	*Maquoketa, Iowa.*
Wehrley, John Henry,	*Chicago.*

Wells, Frances Ellsworth,	*Peotone.*
Wile, Thomas Hudson,	*Texarkana, Texas.*
Wilson, Milton Grundy,	*Lostant.*
Wiltgen, John Peter,	*Chicago.*

JUNIORS.

Abrams, James Garfield,	*Lewrence, Mich.*
Ackermann, Albert George Carl,	*Quincy.*
Alfaro, Emilio,	*Barros, P. R.*
Anderson, Walter Edward,	*Kasson, Minn.*
Andruss, Merrill Eugene,	*Nunda.*
Arentz, Sigmar Edward,	*Chicago.*
Arnold, Ethelyn Belle,	*Watseka.*
Beckett, Allen,	*Chicago.*
Behrensmeyer, Otto Ernst,	*Quincy.*
Bettine, Julius Alfred,	*Charles City, Iowa.*
Blahnik, Lawrence Albert,	*Chicago.*
Borucki, Edward Anton,	*Chicago.*
Brooks, Jacob,	*Chicago.*
Bucklin, Frank Emery,	*Chicago.*
Burger, Russell,	*Beloit, Wis.*
Byers, Stacy Alexander,	*Albany.*
Carlson, Henry Godfrey,	*Moline.*
Cerney, Lawrence,	*Chicago.*
Cox, Bernard Francis,	*Chicago.*
Crawford, Frank Alexander,	*Herscher.*
Cropp, Daniel Tappington,	*Chicago.*
Dale, Gustav Garfield,	*Sullivan, Ind.*
Dick, Maurice Selig,	*Chicago.*
Dodge, Roy Eliphalet,	*Charleston, N. H.*
Dolejsi, James Edward,	*Chicago.*
Eberly, Ralph Milton,	*Aurora.*
Edwards, Marie Genevieve,	*Frankfort, S. Dak.*
Eisele, George,	*Quincy.*
Fry, Narcys George,	*Chicago.*
Gauthier, Charles Desire,	*Green Bay, Wis.*
Grebel, Ernst Elmer,	*Beaver Dam, Wis.*
Grimes, Wilbur,	*Clinton.*
Haeseler, Loren Milton,	*Chicago.*
Haffner, George Fred,	*Farmer City.*
Hart, Henry Mathew,	*Chicago.*
Hisgen, Fred Joseph,	*Chicago.*
Hoffman, Carl Edward,	*Plymouth, Wis.*
Holland, David Lewis,	*Chicago.*
Hollnagel, Henry Arnold,	*Chicago.*
Hotlen, Adolph A.,	*McFarland, Wis.*
Hurwich, Louis Julius,	*Chicago.*
Joyce, Edward,	*Chicago.*
Kienzle, Francis Constantine,	*Brooklyn, N. Y.*
Knoblock, Delbert Gustav,	*South Bend, Ind.*
Kraemer, William,	*Chicago.*
Krueger, Frank Fred,	*Seymour, Ind.*
Krueger, Henry John,	*Chicago.*
Kujawski, Bruno Stanley,	*Chicago.*

Laack, Julius Augustus,	*Sheboygan, Wis.*
Lester, John Patrick,	*Amboy.*
Linowiecki, Walter Frank,	*Chicago.*
Luken, Edward Emil,	*Chicago.*
McCaslin, Hugh,	*Nokomis.*
McGuire, Bernard Edward,	*Chicago.*
McRory, William Aluii,	*Bardwell, Ky.*
Machenheimer, Don Grover,	*Carmi.*
Markowski, Michael J.,	*Chicago.*
Martin, Frank Eugene,	*Chicago.*
Mayhew, Walter Simonds,	*Kasson, Minn.*
Meixner, Fred Morris Frankfort,	*Chillicothe.*
Meyerovitz, Abe,	*Chicago.*
Mori, Kinro,	*Nagoya, Japan.*
Mrazek, Rudolph George,	*Chicago.*
Murray, Walter Allen,	*Traverse City, Mich.*
Nekola, Joseph Julius,	*Chicago.*
Nelson, Frank Willis,	*Lake Villa.*
O'Connor, James Thomas,	*De Kalb.*
Palmer, George Dwight,	*Joliet.*
Pannenborg, Jesse Arnold,	*Hammond, Ind.*
Peters, Thomas John,	*Leadville, Colo.*
Pitney, Fred William,	*Augusta.*
Pomeroy, Howard,	*Auburn, Ind.*
Ragor, Joseph Andrew,	*Chicago.*
Reite, Rolf,	*Cooperstown, N. Dak.*
Robinson, John William,	*Peru.*
Roesing, John George,	*Chicago.*
Ross, Joe Benjamin,	*Canton.*
Ruben, Charles,	*Chicago.*
Rund, Bohumil,	*Chicago.*
Schultz, Caesar Edward,	*Joliet.*
Seyfert, Paul,	*Thiensville, Wis.*
Shatzkis, Otto,	*Chicago.*
Sheckler, Roy Benjamin,	*Stockton.*
Skourup, Waldemar Nelson,	*Chicago.*
Stahlfeld, Matthew Gustav,	*Chicago.*
Staman, William J.,	*St. Joe, Ind.*
De Stefano, Edward,	*Chicago.*
Stromer, Frank Bengal,	*Chicago.*
Taylor, Luther Lee,	*Havana.*
Thorpe, Ralph Wayne,	*Wapella.*
Tilton, Claude Enoch,	*Fairmount.*
Tracy, Bert Ross,	*Elgin.*
Turner, Alexander Leonidas,	*Natchez, Miss.*
Tyson, Floyd,	*Athens.*
Watwood, Henry, Jr.,	*Wickliffe, Ky.*
Weis, Louis Harry,	*Hammond, Ind.*
Whittaker, Willie Sidney,	*Deadwood, S. Dak.*
Yochem, John Peter,	*Fountain City, Wis.*
Zukowski, John Leon,	*Chicago.*

SPECIALS.

Venn, Charles,	*Chicago.*
Weinschenk, Harvey,	*Chicago.*

University *of* Illinois
School *of* Pharmacy

CHICAGO COLLEGE OF PHARMACY

ANNOUNCEMENT
1906-1907

REGISTER FOR 1905-1906

S.N.

University of Illinois

The State University

COLLEGES--*Literature and Arts* (Ancient and Modern Languages and Literatures, Philosophical and Political Science Groups of Studies, Economics, Commerce and Industry), *Engineering* (Architecture, Civil Engineering, Municipal and Sanitary Engineering, Electrical Engineering, Mechanical Engineering, Railway Engineering), *Science* (Astronomy, Botany, Chemistry, Geology, Mathematics, Physics, Physiology, Zoology). *Agriculture* (Animal Husbandry, Agronomy, Dairy Husbandry, Horticulture, Household Science). *Law*, *Medicine* (College of Physicians and Surgeons, Chicago). *Dentistry*.

SCHOOLS—Music, Library Science, Pharmacy (Chicago). Graduate School, Summer Session of Nine Weeks.

United States Experiment Station, State Laboratory of Natural History, Biological Experiment Station on Illinois River, State Water Survey, State Geological Survey.

Military Regiment, Military Band, Choral Society, Glee and Mandolin Clubs; Literary, Scientific and Technical Societies and Clubs; Young Men's and Young Women's Christian Associations.

305 members of faculty; 3,000 students; 339 free scholarships; 60,000 volumes in library; 20 buildings.

CORRESPONDENCE WELCOMED. SEND FOR CATALOGUE

W. L. PILLSBURY, Registrar,

URBANA, ILLINOIS.

1906.

Junior Lectures begin.	Tuesday,	Sept. 25
Senior Lectures begin.	Wednesday,	Sept. 26
Senior Laboratories open.	Friday,	Sept. 28
Junior Laboratories open.	Saturday,	Sept. 29
Thanksgiving Day. Holiday.	Thursday,	Nov. 29
Last Session before the Holidays.	Saturday,	Dec. 22

1907.

Instruction resumed.	Thursday,	Jan. 3
Lincoln's Birthday. Holiday.	Tuesday,	Feb. 12
Washington's Birthday. Holiday.	Friday,	Feb. 22
Senior Lectures end.	Friday,	Apr. 12
Junior Lectures end.	Saturday,	Apr. 13
Final Examinations.	Monday,	Apr. 15
Final Examinations.	Tuesday,	Apr. 16
Final Examinations.	Wednesday,	Apr. 17
Forty-seventh Commencement.	Thursday,	Apr. 25
Botanical Excursion.	Thursday,	May 9
Botanical Excursion.	Thursday,	May 23
Botanical Excursion.	Thursday,	June 6
Botanical Excursion.	Thursday,	June 20

NOTE.—The Botanical Excursions are free. Those desiring to attend these excursions will notify the Actuary.

THE COLLEGE BUILDING.

FORTY-SEVENTH ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY

CHICAGO COLLEGE OF PHARMACY

Michigan Boulevard and Twelfth Street, Chicago, Illinois

SESSION OF 1906-1907

REGISTER FOR 1905-1906

CHICAGO . . . . PUBLISHED BY THE UNIVERSITY

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FACULTY

1905-06.

EDMUND J. JAMES, Ph. D., LL. D., President of the University, Urbana.

FREDERICK MARION GOODMAN, Ph. G., Dean of the Faculty, Professor of Materia Medica and Botany, Michigan Boulevard and Twelfth Street, Chicago.

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WILLIAM BAKER DAY, Ph. G., Secretary of the Faculty, Professor of Histological Botany, Michigan Boulevard and Twelfth Street, Chicago.

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CLYDE MASON SNOW, Ph. G., Instructor in Pharmacy, 357 Dearborn Street, Chicago.

EDMUND NORRIS GATHERCOAL, Ph. G., Instructor in Pharmacognosy, Wilmette.

ALBERT HENRY CLARK, Ph. G., Instructor in Chemistry, Michigan Boulevard and Twelfth Street, Chicago.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of the pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building at 465 State street. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely

optional. Laboratory courses in pharmacy, chemistry and vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

On the first of May, 1904, the University secured for the School of Pharmacy the building formerly occupied by the Chicago Manual Training School, at Michigan boulevard and Twelfth street. The new building provides much more commodious quarters than the School has ever before enjoyed and the facilities for instruction have been greatly increased.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the National Government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the National Government script for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign County donated a large brick seminary building, about 1,000 acres of land and $100,000 in

county bonds. In consideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $2,600,000. In 1890, by passage of a law supplementary to the act of 1862, the Congress of the United States provided further appropriations, which now amount to $25,000 annually.

The trustees of the University are nominated in the State conventions, and are elected, together with other State officers, by vote of the citizens of Illinois.

ANNOUNCEMENT

The forty-seventh annual course of instruction in the University of Illinois School of Pharmacy—Chicago College of Pharmacy—will begin Tuesday, September 25, 1906, at ten o'clock in the morning.

The session will continue seven months, closing upon Thursday, April 25, 1907, on which day the graduating exercises will be held.

Aims and Scope

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the

public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education can not be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

The College Building

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick

structure, five stories in height. The building was designed especially for school purposes. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy feet on Twelfth street. There are large windows on four sides, giving excellent light, and the rooms are heated by steam throughout.

The location is an ideal one, near to the center of the city and convenient to the various lines of transportation, yet removed from the noise and bustle of the business district. Opposite the School is Grant Park, in which is located the Art Institute and where the Field Museum and the Crerar Library will soon be permanently placed. In addition to the attractions offered by these institutions, the park itself provides a splendid playground.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city. Satisfactory accommodations may be readily secured within a short distance of the School.

The Lecture Halls

Are four in number and are arranged one above the other, occupying the entire east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to three hundred persons. These halls have both south and east light from many win-

THE QUALITATIVE ANALYTICAL LABORATORY.

dows and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So far as possible, the lecture halls and laboratories devoted to the same subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

The Laboratories

Are six in number, including a laboratory for qualitative analysis ,for quantitative analysis, for advanced chemistry, for pharmacognosy, for general pharmacy, and for dispensing. The total capacity of these laboratories is sufficient for the accommodation of 332 students, working at one time.

The Laboratory For Qualitative Analysis

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards so as to accommodate a class of two hundred and eighty-eight students, divided into four sections, and allow each student to have his apparatus under lock and key. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

The Laboratory for Quantitative Analysis

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of

THE QUANTITATIVE ANALYTICAL LABORATORY.

the building and is supplied with work-stands for classes of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use and a well-selected chemical library is freely accessible to students.

The Laboratory for Advanced Chemistry

Is 21 by 40 feet in size, has excellent light and will be equipped for classes of thirty students. This laboratory is intended chiefly for students who may desire special or post-graduate work.

The Laboratory for Pharmacognosy

Is 26 by 51 feet in size, is situated on the third floor, is well lighted and has ample blackboard space. Desks are provided for sixty-eight students. Fifty compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, scalpel and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter col-

THE MICROSCOPICAL LABORATORY.

lected by Professor Bastin and his assistants during his connection with the botanical department of this College. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the Southern States and from the far West may be found in this collection.

The Laboratory For General Pharmacy

Occupies a room 43 by 51 feet in size and situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, etc. Collections of chemical and pharmaceutical products, interesting files of prescriptions and a complete working library are also to be found here.

The Dispensing Laboratory

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet in size and is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and

THE GENERAL PHARMACEUTICAL LABORATORY.

affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well arranged prescription department of a pharmacy. The laboratory will accommodate classes of forty students working at once.

The Office

In which all the business of the School is transacted by the Actuary and his assistant, is situated on the first floor, just east of the main entrance to the building.

The Library

Adjoins the office and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books. Complete files of the leading pharmaceutical periodicals form an important feature of the library and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference provide a valuable supplement to these.

The Students' Reading Room

Is suitably equipped with tables and chairs and contains the current numbers of the pharmaceutical periodicals conveniently accessible for the use of students. A sufficient number of steel lockers are provided for the use of students in caring for coats, hats and books.

Requirements for Admission

Applicants for admission must be at least seventeen years of age, and must furnish evidence of a

preliminary education equivalent to that required for entrance to an accredited high school.

Registered pharmacists, assistants or apprentices of Illinois or of other states having equal requirements are admitted on their certificates.

The entrance requirements of this school are those adopted by the American Conference of Pharmaceutical Faculties of which this school is a member.

Advanced Standing

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

Requirements for Graduation

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this College, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has attained the age or practical experience required, will, if successful, receive a certificate of having finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

Course of Instruction

The course comprises a Junior and a Senior Year, each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from seven to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR

Pharmacy

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils and devices employed in pharmaceutical practice. Heat, its source and uses, as involved in the many

processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopœia*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to eachgroup are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

Chemistry

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulae and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the irons. These lectures are supplemented with laboratory exercises throughout; here

particular attention is given to stoichiometry, and in a number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany

1. *Botany.* The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.* This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely pre-

sented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

SENIOR YEAR

PHARMACY

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fu-

sibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages are features of the exercises.

CHEMISTRY

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 23.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first

given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœa. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

7. *Urine Analysis.*—This course includes the detection of abormal constituents of urine and the quantitative determination of urea, sugar, etc.

Materia Medica

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habits, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the impor-

tance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly within this scope.

7. *Pharmacognosy.* — The instruction in this branch is conducted in the same manner as during the Junior Year (page 24,) this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of microchemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are typical of the various plant organs are selected for study. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

Special Lectures on Business Topics

A series of special lectures will be given during the session, and will be free to students of both classes. The course will include: methods of bookkeeping especially suited to the retail drug store; the advantageous buying of goods; hints on pricing and estimating cost; discounts, drafts and credits; the handling and sale of such side-lines as are usually found in drug stores; window displays; advertising methods, etc. The lectures will be given by pharmacists of the city and by experts in the various subjects. The course will be under the supervision of the Advisory Board.

GENERAL INFORMATION

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

Chemistry.—*Sadtlerand Coblentz's Pharmaceutical Chemistry*, Vol. I, Dobbin and Walker's Chemical Theory for Beginners, *Puckner's Analytical Chemistry*, Bernthsen's Organic Chemistry, *Prescott and Johnson's Qualitative Analysis*, Coblentz's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica*, *Gray's School and Field Botany*, Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology*.

PHARMACY.—*The Pharmacopœia*, United States or National Dispensatory, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

PRIZES

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BIROTH PRIZE.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Scholarship, attendance, attention and general neatness will be taken into account in awarding this prize.

THE BECKER PRIZE.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highest standing in pharmacy.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIP, offered by the professor of pharmacy to the senior student who stands second highest in pharmacy.

FEES AND EXPENSES.

MATRICULATION.—The fee for matriculation is five dollars and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuition fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College and to cover breakage or damage to such apparatus as well as needless or willful damage to fixtures or building each student is required to deposit ten dollars with the Actuary. From this deposit will be deducted the charges for apparatus broken, missing or not returnable together with a class charge for such

apparatus as is used by the class in common, also a locker fee of one dollar for locker in the coat-room, if used by the student. The remainder will be refunded at the close of the term.

A DIPLOMA FEE of five dollars will be required.

ALUMNI QUIZ FEE.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

PAYMENT OF FEES.—The laboratory deposit and at least one-third of the tuition fee must be paid at the opening of the session. The remainder of the fees must be paid within thirty days after that date.

BOARD AND LODGING.—Good board and lodging, within walking distance of the college, can be had for from four to six dollars per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

BOOKS.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

SELECTION OF SEATS

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment

on tuition account of five dollars. It is of advantage to students to matriculate early.

Opportunities for Employment

While the lectures and the laboratory practice together with the required study, provide sufficient work to occupy all the time of the average student, yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to eight dollars per week.

State Registration

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized.

The diploma of the College is, however, recognized in lieu of examination for registration in about fifteen states and territories.

For further information or for matriculation blank, address

W. B. Day, *Actuary*,

Michigan Boulevard and Twelfth Street, Chicago Ill. Or, W. L. Pillsbury, *Registrar*, Urbana, Ill.

GRADUATES, 1906

DEGREE OF GRADUATE IN PHARMACY

Albert G. C. Ackerman	Quincy
Emilio Alfaro	Barros, P. R.
Walter Edward Anderson	Kasson, Minn.
Ethelyn Belle Arnold	Watseka
Allen Beckett	Chicago
Earle Scott Bourne	Lewis, Ind.
Frank Emery Bucklin	Chicago
Henry Gottfrid Carlson	Moline
Daniel Tappenden Cropp	Chicago
Gustav Garfield Dale	Chicago
Leonard Berry Fox	Chicago
Narcys George Fry	Chicago
Charles Desire Gauthier	Green Bay, Wis.
Ernst Elmer Grebel	Beaver Dam, Wis.
Wilbur Grimes	Clinton
Loren Milton Haeseler	Lisbon, Ia.
George Fred Haffner	Farmer City
Charles Edward Hoffman	Plymouth, Wis.
David Lewis Holland	Chicago
Louis Goodman Jacobs	Chicago
Delbert Gustav Knoblock	South Bend, Ind.
Frank Fred Krueger	Seymour, Ind.
Henry John Krueger	Chicago
John Ernst Laatz	Chicago
Hugh McCaslin	Nokomis
Charles Gratiano McDow	C. Juarez, Mexico
Don Grover Machenheimer	Carmi
Walter Simonds Mayhew	Kasson, Minn.
Frederick M. F. Meixner	Chillicothe
Walter Allen Murray	Traverse City, Mich
Rolf Reite	Cooperstown, N. D.
John William Robinson	Peru
George William Seifried	Chicago
Paul Seyfert	Thiensville, Wis.
Otto Shatzkis	Chicago
Luther Lee Taylor	Havana
George Edwin White	Chicago
John Peter Wiltgen	Chicago
Elmer Joseph Mercil (Class of '02)	Chicago
Charles Demes (Class of '04)	Chicago
William John Leiner (Class of '04)	Ottawa
Hugo Julius Schumm (Class of '04)	La Porte, Ind.
Charles Venn (Class of '04)	Chicago

Harvey Andrew Watson (Class of '04 ..... Chicago
Charles William Boyce (Class of '05) ..... Chicago
John Rose Hall (Class of '05) ..... Bloomington
William Milton Eugene Hawk (Class of '05) ..... Kittanning, Pa.
James Michael Honsik (Class of '05) ..... Chicago
Edward Albert Lukasek (Class of '05) ..... Chicago
R. Frank Mayfield (Class of '05) ..... Mt. Vernon
John Kuhler Parker (Class of '05) ..... Griggsville
James Patejdl (Class of '05) ..... Chicago

Certificates

Frank Alexander Crawford ..... Herscher
Rudolph George Mrazek ..... Chicago
Martin Schupmann ..... Chicago
Edward De Stefano ..... Chicago
Claude Enoch Tilton ..... Fairmount

Class Honors, Excellence in Scholarship

Senior Class.

Claude Enoch Tilton
Ethelyn Belle Arnold
Charles Desire Gauthier
Frederick M. F. Meixner
Wilbur Grimes
Albert G. C. Ackermann
Walter Allen Murray
Paul Seyfert
Rolf Reite

Junior Class

John Peter Lee
Lotis Loma Huston
George Julius Langheim
Karel Bartholamae Blahnik
Joseph Herman Christmann
Charles Fremont Kingery
Walter Henry Reuter

Prizes

Claude Enoch Tilton ..... Alumni Medal
Frederick M. F. Meixner ..... Biroth Prize
Charles Desire Gauthier ..... Becker Prize
Claude Enoch Tilton ..... Searle and Hereth Prize
Ethelyn Belle Arnold ..... A. Ph. A. Membership

LIST OF STUDENTS

Session of 1905-1906

SENIORS.

Ackermann, Albert George Carl,.....*Quincy.*
Alfaro, Emillio,.....*Barros, P. R.*
Anderson, Walter Edward,.....*Kasson, Minn.*
Arentz, Sigmar Edward,.....*Chicago.*
Arnold, Ethelyn Belle,.....*Watseka.*
Beckett, Allen,.....*Chicago.*
Bourne, Earle.....*Lewis, Ind.*
Bucklin, Frank Emery .....*Chicago.*
Carlson, Henry Gottfrid,.....*Moline.*
Crawford, Frank Alexander.....*Herscher.*
Cropp, Daniel Tappington,.....*Chicago.*
Dale, Gustav Garfield, ...*Chicago.*
Eberly, Ralph Milton,.....*Aurora.*
Fox, Leonard Berry,.....*Chicago.*
Fry, Narcys George.....*Chicago.*
Gauthier, Charles Desire,.....*Green Bay, Wis.*
Grebel, Ernest Elmer.....*Beaver Dam, Wis.*
Green, Shade Winfield.....*Athens, Texas.*
Grimes, Wilbur,.....*Clinton.*
Haeseler, Loren Milton.....*Lisbon, Ia.*
Haffner, George Fred,.....*Farmer City.*
Hisgen, Fred Joseph,.....*Chicago.*
Hoffman, Carl Edward,.....*Plymouth, Wis.*
Holland, David Lewis,.....*Chicago.*
Hollnagel, Henry Aruold,.....*Chicago.*
Jacobs, Louis Goodman,.....*Chicago.*
Knoblock, Delbert Gustav.....*South Bend, Ind.*
Krueger, Frank Fred.....*Seymour, Ind.*
Krueger, Henry John.....*Chicago.*
Laack, Julius Augustus.....*Sheboygan, Wis.*
Laatz, John Ernest.....*Chicago.*
McCaslin, Hugh.....*Nokomis.*
McDow, Charles Gratiano.....*C. Juarez, Mexico.*
Machenheimer, Don Grover.....*Carmi.*
Mayhew, Walter Simonds.....*Kasson, Minn.*
Meixner, Fred Morris Frankfort.....*Chillicothe.*
Mrazek, Rudolph George.....*Chicago.*
Murray, Walter Allen.....*Traverse City, Mich.*
Nekola, Joseph Julius.....*Chicago.*
Palmer, George Dwight.....*Joliet.*
Price, Walter Carlyle.....*Vienna.*
Reite, Rolf.....*Cooperstown, N. D.*
Robinson, John William.....*Peru.*

Rund, Bohumil.....*Chicago.*
Schupmann, Martin.....*Chicago.*
Seifried, George William.....*Chicago.*
Seyfert, Paul.....*Thiensville, Wis.*
Shatzkis, Otto.....*Chicago.*
DeStefano, Edward.....*Chicago.*
St. Martin, Theresa.....*Wahoo, Neb.*
Taylor, Luther Lee.....*Havana.*
Thorpe, Ralph Wayne.....*Wapella.*
Tilton, Claude Enoch.....*Fairmount.*
White, George Edwin.....*Chicago.*
Wiltgen, John Peter.....*Chicago.*
Zukowski, John Leon.....*Chicago.*

JUNIORS.

Anderson, Karl Elliot.....*Menomonie, Wis.*
Arnold, Thomas Jefferson.....*Mt. Carmel.*
Bakkers, Andrew.....*Chicago.*
Barron, Arthur Franklin.....*Dixon*
Beaman, Grover Berton.....*Shelbyville,*
Behrensmeyer, Ernst Henry.....*Quincy.*
Berend, Jack Wallace.....*Chicago.*
Beyerman, William John.....*Chicago.*
Bickford, Mark Dean.....*Sterling.*
Biggs, Edwin Thomas.....*Waverly, Ky.*
Blahnik, Karel Bartholomae.....*Chicago.*
Blake, Frank Edmund.....*Watseka.*
Boyd, Thomas Jackson.....*Effingham,*
Boyer, Alden Scott.....*Cresco, Ia.*
Buerkett, Fred Noah.....*Springfield.*
Bunch, Floyd Falconer.....*Clifton Forge, Va,*
Busch, Emanuel.....*Chicago.*
Carlson, Carl Gustave.....*Ludington, Mich.*
Carlyle, Frank Wallet.....*Bellflower,*
Cassin, Elmer Eldorado.....*Ogden, Utah.*
Christiansen, Christian August.....*Chicago,*
Christmann, Joseph Herman.....*Chicago,*
Cook, Layton Williard.....*Chicago.*
Czeslawski, Felix Alexander.....*Chicago,*
Deeter, Lawrence Edgar.....*Dixon,*
Denson, Wayne Crawford.....*Minonk.*
Doggett, James Lesley.....*Monroeville, Ind.*
Dunstan, Ellsworth John.....*Chicago.*
Eddy, John.....*Detroit, Mich.*
Ellsworth, Dee Earle.....*Chicago,*
Falk, Herman William.....*Chicago.*
Ferguson, William Allen.....*Minooka,*
Flucke, Herman William Richard.....*Chicago.*
Furman, Tisdale Eddie Perry.....*Chicago.*
Gardner, Sidney Warren.....*Columbus, Miss.*

Goldstandt, Walter Asher.....*Wanego, Kas.*
Goodman, Jacob.....*Chicago.*
Griest, Homer Leslie.....*Milford.*
Hayes, Walter David.....*Bloomington.*
von Herman, Edward.....*Chicago.*
Herbster, Albert Logan.....*Ottawa.*
Hertneck, Fred Jr.....*Chicago.*
Holtz, Edwin.....*Kankakee.*
Huston, Lotis Loma.....*Maquoketa, Ia.*
Jackson, Booker Leon.....*Kewanee.*
Jaworski, Edmund William.....*Chicago.*
Johl, Walter.....*Chicago.*
Johnston, Howell.....*Charleston.*
Johnston, John Lynch.....*Chicago.*
Jusajtus, Bernard Fleix.....*Chicago.*
Kingery, Charles Fremont.....*Mendota.*
Knick, George Ferdinand.....*Brownton, Minn.*
Kopczynski, Leo Peter.....*Chicago.*
Krampff, Herman Robert.....*Havana.*
Krebs, Eugene August.....*Chicago.*
Krzemieniewski, John Joseph.....*Chicago.*
Langheim, George Julius.....*Charlotte, Ia.*
Lee, John Peter.....*Chicago.*
Lindley, Ira Williard.....*Central City, Neb.*
Lorenz, Otto John.....*Chicago.*
Lydon, Louis Henry.....*Chicago.*
Martin, Paul Owen.....*Effingham.*
May, George Clark.....*Princeton, Ind.*
McCabe, Frank John.....*Chicago.*
McKeon, Mathew John.....*Chicago.*
McNair, Hugh.....*Mt. Carmel.*
Mendelssohn, Max.....*Chicago.*
Meyer, Heinrich Bernhart August.....*Chicago.*
Meyer, William.....*Peoria.*
Miles, Eugene Lester.....*Chicago.*
Miles, Jesse Earle.....*Weldon.*
Morrison, William Lloyd.....*Paxton.*
Nelson, Arthur James.....*Burlington, Ia.*
Nelson, Frank Willis.....*Lake Villa.*
Oberman, Abraham Max.....*Chicago.*
Pavlicek, Bohumil Joe.....*Chicago.*
Pfaff, Henry, Jr.....*Chicago.*
Piotrowski, John Alexander.....*Chicago.*
Plummer, Andrew Vern.....*Fennville, Mich.*
Polk, John Knox.....*Versailles, Ky.*
Preston, George Loy.....*Gibson City.*
Propp, Charles.....*Kouts, Ind.*
Ratkowski, Frank.....*Chicago.*
Reisman, Bertha.....*Chicago.*

Reuter, Walter Henry..... *Union, Ore.*
Richards, Arthur E..... *Wyanet.*
Rotter, Leo Richard..... *Quincy.*
Ruicker, Frederirk Henry..... *Chicago.*
Ryan, Roger..... *Chicago,*
Scheiner, Charles James..... *Chicago.*
Scheiner, Otto, D. D. S,, (*Chicago Dental Coll.*)
1903, Chicago.
Schimelfenig, Clarence..... *Chicago.*
Schinz, Fred Emil..... *La Salle.*
Schmidt, Carl William..... *St. Louis, Mich.*
Schmitt, Joseph Jacob..... *Chicago.*
Schneider, Carl Henry..... *Galesburg.*
Schulz, William Charles..... *Racine, Wis.*
Schumm, Edwin Theodore..... *La Porte, Ind.*
Secord, George Louis..... *Chicago.*
Soucek, Edward James..... *Chicago.*
Springer, Walter Edwin..... *Elgin.*
Stock, Walter John..... *Chicago.*
Sutton, R. N..... *Montpelier, Idaho.*
Thomson, George ..... *Fort Collins, Colo.*
Vovesny, Louis Joseph..... *Chicago.*
Wach, Edward Charles..... *Chicago.*
Walta, Frank Stanley ..... *Chicago.*
Webster, Stanley Ballenger..... *Winslow.*
Wieschendorff, William Edward..... *Los Angeles, Cal.*
Williamson, Wyley Porter..... *Marietta. Ohio.*
Wiltgen, Joseph John..... *Chicago.*
Wirtz, John Adam..... *Princeton, Ind.*
Wolinsky, Benjamin..... *Chicago.*
Yundt, Charles Ray..... *Mulberry, Ind.*
Zaleski, Rufus Edward Gary..... *Chicago.*
Zidek, Rudolph Joseph..... *Chicago.*

SPECIAL STUDENT

Johnson, Philip Charles, Ph, G., (*Univ. of Illinois*), *1904, Chicago.*

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University of Illinois School of Pharmacy

CHICAGO COLLEGE OF PHARMACY

Announcement 1907 and 1908

REGISTER FOR 1906-1907

University of Illinois

THE STATE UNIVERSITY

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COLLEGE CALENDAR

1907.

Registration Day.	Monday,	Sept. 23
Junior Lectures begin.	Tuesday,	Sept. 24
Senior Lectures begin.	Wednesday,	Sept. 25
Senior Laboratories open.	Friday,	Sept. 27
Junior Laboratories open.	Saturday,	Sept. 28
Thanksgiving Day. Holiday.	Thursday,	Nov. 28
Last Session before the Holidays.	Saturday,	Dec. 21

1908.

Instruction resumed.	Thursday,	Jan. 2
Lincoln's Birthday. Holiday.	Wednesday,	Feb. 12
Washington's Birthday. Holiday.	Saturday,	Feb. 22
Senior Lectures end.	Friday,	Apr. 10
Junior Lectures end.	Saturday,	Apr. 11
Final Examinations.	Monday,	Apr. 13
Final Examinations.	Tuesday,	Apr. 14
Final Examinations.	Wednesday,	Apr. 15
Forty-eighth Commencement.	Thursday,	Apr. 23

THE COLLEGE BUILDING.

FORTY-EIGHTH ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY

CHICAGO COLLEGE OF PHARMACY

Michigan Boulevard and Twelfth Street, Chicago, Illinois

SESSION OF 1907-1908

REGISTER FOR 1906-1907

CHICAGO . . . . . PUBLISHED BY THE UNIVERSITY

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1906-07.

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Frederick Marion Goodman, Ph. G., Dean of the Faculty. Professor of Materia Medica and Botany, 36 East Twelfth Street, Chicago.

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William Baker Day, Ph. G., Secretary of the Faculty, Professor of Histological Botany, 36 East Twelfth Street, Chicago.

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Clyde Mason Snow, Ph. G., Instructor in Pharmacy, 36 East Twelfth Street, Chicago.

Edmund Norris Gathercoal, Ph. G., Instructor in Pharmacognosy, 36 East Twelfth Street, Chicago.

Albert Henry Clark, Ph. G., Instructor in Chemistry, 36 East Twelfth Street, Chicago.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of the pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year, secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building at 465 State street. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Labora-

tory courses in pharmacy, chemistry and vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

On the first of May, 1904, the University secured for the School of Pharmacy the building formerly occupied by the Chicago Manual Training School, at Michigan boulevard and Twelfth street. The new building provides much more commodious quarters than the School has ever before enjoyed and the facilities for instruction have been greatly increased.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the National Government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the National Government script for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign County donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In con-

sideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $2,600,000. In 1890, by passage of a law supplementary to the act of 1862, the Congress of the United States provided further appropriations, which now amount to $25,000 annually.

ANNOUNCEMENT

The forty-eighth annual course of instruction in the University of Illinois School of Pharmacy—Chicago College of Pharmacy—will begin Tuesday, September 24, 1907, at ten o'clock in the morning.

The session will continue seven months, closing upon Thursday, April, 23, 1908, on which day the graduating exercises will be held.

Aims and Scope

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must be held responsible for the purity and strength of his

preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education can not be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professioual career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, to qualify himself either as a teacher or a technical expert, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

The College Building

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick structure, five stories in height. The building was designed especially for school purposes. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy

feet on Twelfth street. There are large windows on four sides, giving excellent light, and the rooms are heated by steam throughout.

The location is an ideal one, near to the center of the city and convenient to the various lines of transportation, yet removed from the noise and bustle of the business district. Opposite the School is Grant Park, in which is located the Art Institute and where the Field Museum and Crerar Library will soon be permanently placed. In addition to the attractions offered by these institutions, the park itself provides a splendid playground.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city. Satisfactory accommodations may be readily secured within a short distance of the School.

The Lecture Halls

Are four in number and are arranged one above the other, occupying the entire east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to three hundred persons. These halls have both south and east light from many windows and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So

THE QUALITATIVE ANALYTICAL LABORATORY.

far as possible, the lecture halls and laboratories devoted to the same subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

The Laboratories

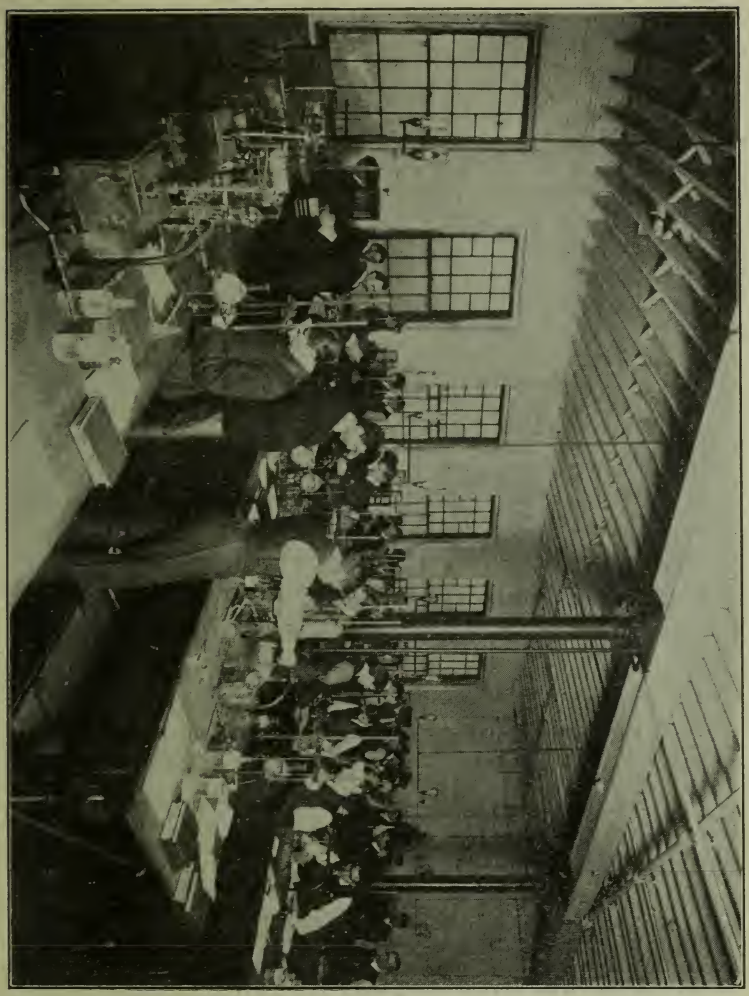
Are six in number, including a laboratory for qualitative analysis, for quantative analysis, for advanced chemistry, for pharmacognosy, for general pharmacy, and for dispensing. The total capacity of these laboratories is sufficient for the accommodation of 332 students, working at one time.

The Laboratory for Qualitative Analysis

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards so as to accommodate a class of two hundred and eighty-eight students, divided into four sections, and allow each student to have his apparatus under lock and key. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

The Laboratory for Quantitative Analysis

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of the building and is supplied with work-stands for classes



THE QUANTITATIVE ANALYTICAL LABORATORY.

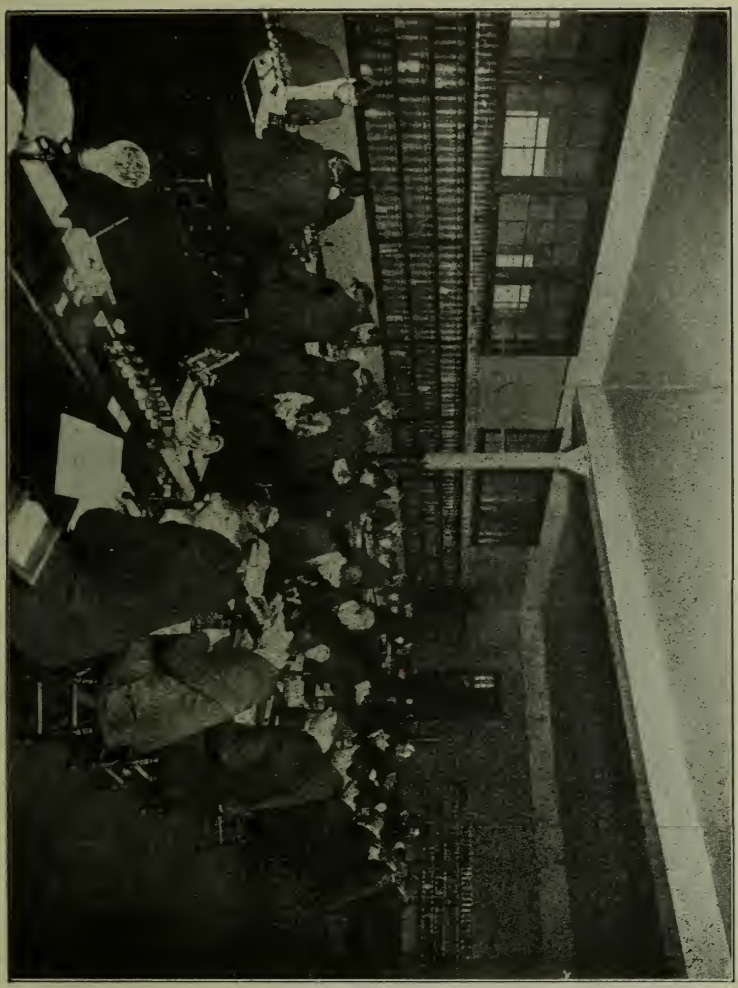
of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use and a well-selected chemical library is freely accessible to students.

The Laboratory for Advanced Chemistry

Is 21 by 40 feet in size, has excellent light and will be equipped for classes of thirty students. This laboratory is intended chiefly for students who may desire special or post-graduate work.

The Laboratory for Pharmacognosy

Is 26 by 51 feet in size, is situated on the third floor, is well lighted and has ample blackboard space. Desks are provided for sixty-eight students. Fifty compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, scalpel and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a larger number of illustrations of medicinal palnts and a very extensive herbarium. the latter collected by Professor Bastin and his assistants during his connection with the botanical



THE MICROSCOPICAL LABORATORY.

department of this College. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the Southern States and from the far West may be found in this collection.

The Laboratory for General Pharmacy

Occupies a room 43 by 51 feet in size and situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, etc. Collections of chemical and pharmaceutical products, interesting files of prescriptions and a complete working library are also to be found here.

The Dispensing Laboratory

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet in size and is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well

THE GENERAL PHARMACEUTICAL LABORATORY

arranged prescription department of a pharmacy. The laboratory will accommodate classes of forty students working at once.

The Office

In which all the business of the School is transacted by the Actuary and his assistant, is situated on the first floor, just east of the main entrance to the building.

The Library

Adjoins the office and contains about two thousand volumes, including, in addition to the usual works of reference, many rare boks. Complete files of the leading pharmaceutical periodicals form an important feature of the library and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference provide a valuable supplement to these.

The Students' Reading Room

Is suitably equipped with tables and chairs and contains the current numbers of the pharmaceutical periodicals conveniently accessible for the use of students. A sufficient number of steel lockers are provided for the use of students in caring for coats, hats and books.

Requirements for Admission

Applicants for admission must be at least seventeen years of age, and must furnish evidence of a preliminary education equivalent to that required for entrance to an accredited high school.

Registered pharmacists, assistants or apprentices of Illinois or of other states having equal requirements are admitted on their certificates.

Beginning with the session of 1908-09 the satisfactory completion of at least one year of work in an accredited high school, or its equivalent, will be required for admission.

The entrance requirements of this school are those adopted by the American Conference of Pharmaceutical Faculties of which this school is a member.

Advanced Standing

Students who have pursued courses of study in other colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this college.

Requirements for Graduation

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other reputable college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this College, and have satisfactorily finished the work required.

The candidate for the degree of graduate in pharmacy, who presents himself for final examination before he has, attained the age or practical experience required, will, if successful, receive a certificate of having

finished the course and will be awarded his diploma when the requirements of age and experience are complied with.

Course of Instruction

The course comprises a Junior and a Senior Year, each of seven months in length. Students attending either of these receive instruction upon three alternate days each week and amounting to from seven to eight hours daily. Instruction is given to but one class each day. No instruction is given during the evening.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytcal chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

JUNIOR YEAR

Pharmacy

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils and devices employed

in pharmaceutical practice. Heat, its source and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopoeia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

Chemistry

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulæ and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout; here particular attention is given to stoichiometry, and in a

number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the elements and their inorganic compounds. Here also certain typical compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Stu-

dents become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoological order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs

used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

SENIOR YEAR.

PHARMACY

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation,

purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts,

fluid extracts, and resins. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and suppositories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatibilities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages are features of the exercises.

Chemistry

4. *Inorganic Chemistry.*—This course is a continuation and conclusion of the work in inorganic chemistry outlined under Chemistry 2. (See p. 23.)

5. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the

pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

6. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

7. *Urine Analysis.*—This course includes the detection of abnormal constituents of urine and the quantitative determination of urea, sugar, etc.

Materia Medica

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habits, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly given within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior

Year (page 24), this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work of this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs such as are typical of the various plant organs are selected for study. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of these methods in the examination of commercial drugs.

Special Lectures on Business Topics

A series of special lectures will be given during the session and will be free to students of both classes. The course will include: methods of bookkeeping especially suited to the retail drug store; the advantageous buying of goods; hints on pricing and estimating cost; discounts, drafts and credits; the handling and sale of such side lines as are usually found in drug stores; window displays; advertising methods, etc. The lectures will be

given by pharmacists of the city and by experts in the various subjects. The course will be under the supervision of the Advisory Board.

GENERAL INFORMATION

Text Books and Works of Reference

The books listed below have been selected as the best suited for the students' use in connection with the courses of instruction. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

Chemistry.—*Smith's General Inorganic Chemistry,* Long's Analytical Chemistry, Sadtler and Coblentz's Pharmaceutical Chemistry, *Puckner's Analytical Chemistry,* Bernthsen's Organic Chemistry, Prescott and Johnson's Qualitative Analysis, Coblentz's Volumetric Analysis.

Materia Medica and Botany.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology,* Students' Standard Dictionary, Dorland's or Gould's Medical Dictionary.

Pharmacy.—*The Pharmacopoeia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy, Scoville's Art of Compounding.

Prizes

The Alumni Medal.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

The Biroth Prize.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Scholarship, attendance, attention and general neatness will be taken into account in awarding this prize.

The Becker Prize.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highest standing in pharmacy.

American Pharmaceutical Association Memberships.—Two such memberships are offered by members of the faculty: One of these prizes is awarded for second highest standing in pharmacy, the other for excellence in pharmacognosy.

Fees and Expenses

Matriculation.—The fee for matriculation is five dollars and is required of junior students upon entering

the class for the first time and of senior students who have taken the first year's work elsewhere.

Tuition Fees.—The tuition fee for each year is seventy-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

Laboratory Deposit.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course, are furnished by the College and to cover breakage or damage to such apparatus as well as needless or willful damage to fixtures or building each student is required to deposit ten dollars with the Actuary. From this deposit will be deducted the charges for apparatus broken, missing or not returnable together with a class charge for such apparatus as is used by the class in common, also a locker fee of one dollar for locker in the coat-room, if used by the student. The remainder will be refunded at the close of the term.

A Diploma Fee or five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The laboratory deposit and at least one-third of the tuition fee must be paid at the

opening of the session. The remainder of the fees must be paid within thirty days after that date.

Board and Lodging.—Good board and lodging within walking distance of the college, can be had for from four to six dollars per week. This expense may be somewhat reduced by two or more students rooming together. The Actuary keeps a list of suitable boarding and rooming places, with their rates.

Books.—The total sum expended for books during both years need not exceed twenty-five dollars. They may be bought as required, but are mostly needed during the first year.

Selection of Seats

Seats in the lecture halls and desks in the laboratories will be asigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to students to matriculate early.

Opportunities for Employment

While the lectures and the laboratory practice together with the required study, provide sufficient work to occupy all the time of the average student, yet the hours are so arranged as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring

employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to eight dollars per week.

State Registration

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized.

The diploma of this school is, however, recognized in lieu of examination for registration in about fifteen states and territories.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs," required by the law, for the actual time of attendance at a school of pharmacy but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for matriculation blank, address

W. B. Day, *Actuary,*

Michigan Boulevard and Twelfth Street, Chicago, Ill. Or W. L. Pillsbury, *Registrar,* Urbana, Ill.

GRADUATES, 1907

Degree of Graduate in Pharmacx

Andrew Bakkers	Chicago.
Ernst Henry Behrensmeyer	Quincy.
William John Beyermann	Chicago.
Mark Dean Bickford	Sterling.
Karel Bartholomae Blahnik	Chicago.
Carl Gustav Carlson	Ludington, Mich.
Elmer Eldorado Cassin	Ogden, Utah.
Joseph Herman Christmann	Chicago.
George Eisele	Quincy.
Robert Fielding Haines	Columbia Falls, Mont.
Lotis Loma Huston	Maquoketa, Iowa.
Charl Fremont Kingery	Mendota.
John Joseph Krzemieniewski	Chicago.
John Peter Lee	Chicago.
Ira Willard Lindley	Central City, Neb.
Hugh McNair	Mt. Carmel.
Paul Owen Martin	Effingham.
George Clark May	Princeton, Ind.
Max Mendelssohn	Chicago.
Jesse Earl Miles	Weldon.
Arthur James Nelson	Burlington, Iowa.
Walter Henry Reuter	Union, Oregon.
Fred Emil Schinz	La Salle.
George Louis Secord	Chicago.
George Keith Thomson	Fort Collins, Colo.
Charles Ray Yundt	Mulberry, Ind.
Edward Charles Wach	Chicago.
Garret James O'Neill (Class of '05)	Evanston, Wyo.
Frances Ellsworth Wells (Class of '05)	Chicago.
Edward De Stefano (Class of '06)	Chicago.

Certificates

Karl Elliott Anderson	Menomonie, Wis.
Frank Edmund Blake	Watseka.
Floyd Falconer Bunch	Clifton Forge, Va.
Dee Earl Ellsworth	Chicago.
Tisdale E. P. Furman	Chicago.
Jacob Goodman	Chicago.
Howell Johnston	Charleston.
George Julius Langheim	Charlotte, Iowa.
Frank John McCabe	Chicago.
Henry Pfaff, Jr.	Chicago.
Andrew Vern Plummer	Fenville, Mich.
Bertha Reisman	Chicago.
Frederick Henry Ruicker	Chicago.
Edwin Theodore Schumm	La Porte, Ind.
Jesse F. N. Buerkett	Springfield.

Class Honors, Excellence in Scholarship

Senior Class.

John Peter Lee
George Eisele
Walter Henry Reuter
Karel Bartholomae Blahník
Max Mendelssohn.

Junior Class.

Raleigh Earel
Auburn Seth Kisner
Rexford De Tompkins
Fred Kramer Anderson
Amar Nath Banerjee
Harold Dudley Baldwin
Delmar Nelson Fiddler
Henry August Langenhan
James Strachen Miller

Prizes

John Peter Lee.....Alumni Medal
Lotis Loma Huston.....Biroth Prize
George Eisele.....Becker Prize
Karol Bartholomae Blahník.....A. Ph. A. Membership in Pharmacognosy.
Walter Henry Reuter.....A. Ph. A. Membership in Pharmacy.

LIST OF STUDENTS.

Session of 1906-1907

SENIORS.

Anderson, Karl Elliot,	Menomonee, Wis.
Bakkers, Andrew,	Chicago.
Beaman, Grover Berton,	Shelbyville.
Beyermann, William John,	Quincy.
Beyermannn, William John,	Chicago.
Bickford, Dean Mark,	Sterling.
Blahnik, Karel Bartholomae,	Chicago.
Blake, Frank Edmund,	Watseka.
Buerkett, Fred Noah,	Springfield.
Bunch, Floyd Falconer,	Clifton Forge, Va.
Carlson, Carl Gustave,	Ludington, Mich.
Carlyle, Frank Wallet,	Bellflower.
Cassin, Elmer Eldorado,	Ogden, Utah.
Christman, Joseph Herman,	Chicago.
Eisele, George,	Quincy.
Ellsworth, Dee Earle,	Chicago.
Ferguson, William Allen,	Minooka.
Furman, Tisdale Eddie Perry,	Chicago.
Goodman, Jacob,	Chicago.
Griest, Homer Leslie,	Milford.
Haines, Robert Fielding,	Columbia Falls, Mont.
Hayes, Walter David,	Bloomington.
Hollnagel, Henry Arnold,	Chicago.
Hunter, James Chester,	Warren, Ohio.
Huston, Lotis Loma,	Maquoketa, Ia.
Hynes, William Henry,	Chicago.
Johnston, Howell,	Charleston.
Kingery, Charles Fremont,	Mendota.
Krzemieniewski, John Joseph,	Chicago.
Langheim, George Julius,	Charlotte, Ia.
Lee, John Peter,	Chicago.
Lindley, Ira Willard,	Central City, Neb.
Martin, Paul Owen,	Effiingham.
May, George Clark,	Princeton, Ind.
McCabe, Frank John,	Chicago.
McNair, Hugh,	Mt. Carmel.
Mendelssohn, Max,	Chicago.
Miles, Eugene Lester,	Chicago.
Miles, Jesse Earle,	Weldon.
Nekola, Joseph Julius,	Chicago.
Nelson, Arthur James,	Burlington, Ia.
Piercy, Joseph Clifton,	Tonopah, Nev.
Pfaff, Henry, Jr.,	Chicago.

Plummer, Andrew Vern,	Fennville, Mich.
Reisman, Bertha,	Chicago.
Reuter, Walter Henry,	Union, Ore.
Ruicker, Frederick Henry,	Chicago.
Schinz, Fred Emil,	La Salle.
Schumm, Edwin Theodore,	La Porte, Ind.
Secord, George Louis,	Chicago.
Stromer, Frank Bengal,	Chicago.
Thomson, George,	Fort Collins, Colo.
Thorpe, Ralph Wayne,	Chicago.
Wach, Edward Charles,	Chicago.
Wieschendorff, William Edward,	Los Angeles, Cal.
Yundt, Charles Ray,	Mulberry, Ind.
Zaleski, Rufus Edward Gary,	Chicago.

JUNIORS.

Afremow, George,	Chicago.
Allen, Birdie Olive,	Wenona.
Anderson, Fred Kramer,	Butte, Mont.
Baker, Thomas Everett,	Cleveland, Okla.
Baldwin, Harold Dudley,	Hampton, Ia.
Banerjee, Amar Nath, L. M. S., (Calcutta University), 1901,	Benares City, India.
Battenschlag, George Frederick,	Aurora.
Blatt, Joseph Arnold,	Chicago.
Borowski, John Chrol,	Chicago.
Bowden, William Turner, A. B., (Roger Williams University), 1905,	Chicago.
Bridge, John James,	Salt Lake City, Utah.
Bujewski, Thadeus John,	Chicago.
Cazel, Ernest Clyde,	Evanston.
Crawford, Leslie Ray,	Nachusa.
Davies, Byron Lake,	Chicago.
Doerr, Walter William,	Chicago.
Dunn, Everett Aldon,	Duquoin.
Earel, Raleigh,	Quincy.
Eddy, John,	Detroit, Mich.
Ekstrom, Carl David,	Chicago.
Feldsher, Nathan,	Chicago.
Fett, Otto August,	Chicago.
Fiddler, Delmar Nelson,	Watseka.
Fortune, John Earl,	Springfield.
Frantz, Bruce Carr,	Pekin, Ind.
Gasen, Reuben Robert,	Girard.
Gray, Ralph Mortimer,	Chicago Heights.
Haffner, Edward John,	Farmer City.
Haider, Walter Anton,	Beaver Dam, Wis.
Holleman, William George,	Green Bay, Wis.

Heimsath, Peter Albert,	Aurora.
Hibbe, Charles,	Chicago.
Howard, William Alexander,	Pass Christian, Miss.
Jacobs, Eddie Goodman,	Chicago.
Johnson, Albin Christian,	Chicago.
Kakacek, Joseph Jerome,	Chicago.
Kazda, James Robert,	Chicago.
Kisner, Auburn Seth,	Brownsville.
Knaak, Edward Charles,	Deerfield.
Knutzen, Andreas Martinius,	Chicago.
Kohn, Nathan,	Chicago.
Kraft, Herbert Ernest,	Chicago.
Krampff, Herman Robert,	Havana.
Kral, Fred Frank,	Chicago.
Kremer, Victor Albert,	Chicago.
Kuflewski, Frank August,	Chicago.
Langenhan, Henry August,	Ableman, Wis.
Larsen, Alfred Michael,	Spokane, Wash.
Laufer, August George John,	Bloomington.
Lebovitz, Jacob,	Chicago.
Leon, Michael Lev,	Chicago.
Lipsky, Alfred,	Chicago.
Lohmar, William,	Chicago.
Luckenbach, Walter Conrad,	Oconto, Wis.
Lukasek, Otto William,	Chicago.
Lundgreen, Harry Charles,	Larned, Kas.
Lyons, Frederick James,	Grand Junction, Mich.
Martin, John Thomas,	Park Ridge.
Mastandrea, Louis Tony,	Chicago.
Merrill, Joseph Alfred,	Chicago.
Miller, James Strachen,	Coal City.
Mollan, Herbert Edward,	Chicago.
Mottar, William Darrell,	Springfield.
Munns, Elmer Edward,	Chicago.
Nawrot, Peter Paul,	Chicago.
Neary, Thomas,	Utica.
Niedzwiecki, Leo Joseph,	Chicago.
Niemeyer, Frank,	Dakota City, Neb.
Niggling, Martin,	Remsen, Ia.
Otto, Ernest,	Chicago.
Owens, Alvrado Benson,	Savanna.
Patterson, Steven,	Ottawa.
Pavlicek, Adolph Vaclav,	Chicago.
Pellett, Walter John,	Manitowoc, Wis.
Polk, John Knox,	Versailles, Ky.
Powell, Thomas Benton, Jr.	Vienna.
Propp, Charles,	Chicago.
Raetz, Clarence Edward,	Appleton, Wis.

Rauschert, Herman Lawrence,	Lake Mills, Wis.
Renaud, James Patrick,	Chicago.
Roache, Dowell De,	Savannah, Ga.
Rohrbach, John Henry,	Piper City.
Rosenberg, Raymond Henry,	Rochelle.
Ruesch, William Emanuel,	Joliet.
Schreiber, Paul Fred,	Chicago.
Sells, Charles George,	Chicago.
Serritella, Michael Archangel,	Chicago.
Shipman, Frank Edmund,	Paris.
Silberman, Samuel Mitchell,	Chicago.
Skalicky, Jaroslav,	Chicago.
Skinner, Harry Garrison,	Yates City.
Sklamberg, Isadore,	Chicago.
Smith, Herbert William,	Quincy.
Sommer, Robert,	Springfield.
Stark, Carl Frederick,	De Kalb.
Staszak, John,	Chicago.
Steinkraus, Otto Louis,	Bloomington.
Stoeffhaas, Otto,	Chicago.
Stuker, Conrad Stephen,	Chicago.
Swanson, David Emanuel,	Chicago.
Tervehn, William Richard,	Peoria.
Tomashek, Frank Edmund,	Chicago.
Tomlinson, Walter Edmund,	Galesburg.
Tompkins, Rexford De,	Mt. Sterling.
Urban, John Joseph,	Chicago.
Voss, Steward Franklin,	Assumption.
Walczykiewicz, Felix Stanislaus,	Chicago.
Winborn, Elmer Norris,	Detroit, Mich.
Wirth, George Carl,	Duluth, Minn.
Woolington, Roy Andrew,	Champaign.
Zeman, Otto,	Chicago.
Zuck, Frank James,	Rockford.

SPECIALS.

Harris, William Sherman, A. B., 1899, A. M., 1902, (Wittenberg College),	Hillsboro.
Smith, Claude Beaton,	Girard.
Staman, William J.,	St. Joe, Ind.

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CHICAGO COLLEGE OF PHARMACY

SUPPLEMENTARY ANNOUNCEMENT

1907 AND 1908

University of Illinois

THE STATE UNIVERSITY

COLLEGES—*Literature and Arts* (Ancient and Modern Languages and Literatures, Philosophical and Political Science Groups of Studies, Economics, Commerce and Industry), *Engineering* (Architecture, Civil Engineering, Municipal and Sanitary Engineering, Electrical Engineering, Mechanical Engineering, Railway Engineering), *Science* (Astronomy, Botany, Chemistry, Geology, Mathematics, Physics, Physiology, Zoology), *Agriculture* (Animal Husbandry, Agronomy, Dairy Husbandry, Horticulture, Household Science), *Law*, *Medicine* (College of Physicians and Surgeons, Chicago). *Dentistry*.

SCHOOLS—Music, Library Science, Pharmacy (Chicago). Graduate School, Summer Session of Nine Weeks.

United States Experiment Station, State Laboratory of Natural History, Biological Experiment Station on Illinois River, State Water Survey, State Geological Survey.

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Frederick Marion Goodman, Ph. G., Dean of the Faculty, Professor of Materia Medica and Botany, 36 East Twelfth Street, Chicago.

Carl Svante Nicanor Hallberg, Ph. G., Professor of Theoretical and Practical Pharmacy, 36 East Twelfth Street, Chicago.

William August Puckner, Ph. G., Professor of Chemistry, 36 East Twelfth Street, Chicago.

William Baker Day, Ph. G., Secretary of the Faculty, Professor of Histological Botany, 36 East Twelfth Street, Chicago.

Henry Horace Rogers, Ph. B., M. D., Lecturer on Physiology, Highland Park.

Clyde Mason Snow, Ph. G., Instructor in Pharmacy, 36 East Twelfth Street, Chicago.

Edmund Norris Gathercoal, Ph. G., Instructor in Pharmacognosy, 36 East Twelfth Street, Chicago.

Albert Henry Clark, Ph. G., Instructor in Chemistry, 36 East Twelfth Street, Chicago.

A NEW COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy and bacteriology or to prepare themselves for positions under the Food and Drugs Act, this School offers beginning September 24th 1907, a course leading to the degree of Pharmaceutical Chemist and comprising two annual sessions of 36 weeks each, with instruction on five days each week, and amounting to about 33 hours weekly or a total of 2,300 hours in the entire course.

This course will be partly concurrent with the seven months course leading to the Ph. G. degree and will include all the didactic instruction given in the latter. It will consist largely of laboratory practice and will embrace in addition to the curriculum of the course for the degree of Graduate in Pharmacy, for which, see the Annual Announcement, pages 20 to 30, the following subjects:

Qualitative Analysis. The general scope of the course in qualitative analysis is the same as that of the Ph. G. course (Chemistry 3). Special attention will be given to the application of ionization, hydrolysis and molecular concentration or mass action to analytical methods. After a thorough course in the analysis of complex inorganic mixtures the tests of purity prescribed by the U. S. P. for the inorganic compounds will be taken up; especial attention will be given to the detection of dangerous impurities such as arsenic, copper, lead, etc. The course concludes with a study of the

detection of metallic elements and inorganic acids in the presence of organic compounds, and the recognition of carbon, hydrogen, nitrogen, etc., in organic compounds.

Text Book—Quantitative Analysis, Prescott & Johnson.

Quantitative Analysis. This course covers the ground included in the course in quantitative analysis (Chemistry 5) of the Ph. G. course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Text Books—Quantitative Analysis, Select Methods, Clowes & Coleman; Volumetric Analysis, Coblentz.

Organic Analysis and Proximate Assays. Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.,) aldehyds (detection and estimation of formaldehyds, class reactions for aldehyds, estimation of citral in lemon oil), organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recognition), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose and starch), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and

recognition of alkaloids and their estimation in drugs and pharmaceutic products.

Text Books—Outline in Quantitative Analysis, Puckner; U. S. Pharmacopoeia.

New Remedies. Following the course in organic chemistry (Chemistry 6), the many new remedies, especially the so-called "synthetics" will be taken up by classes. In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to the many new remedies, especially the so-called "synthetics," the course in organic chemistry (Chemistry 6) will be followed by a systematic consideration of the newer remedies.

Text Book—New and Non-Official Remedies, American Medical Association.

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine will be discussed and the application of the methods of analysis previously studied to the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course will be given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods will be discussed, also the methods of preparation and preservation and the use of preservatives will receive attention. The methods of estimation studied in previous courses will be applied to milk, butter, fats, oils, baking powder and beverages, and supplemented by special methods.

The composition of mineral waters and their analy-

sis will next be considered, also the sanitary analysis of water will be taken up practically in the laboratory.

Pharmacy.—The work in Pharmacy will be chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants: specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations in products of oxidation and reduction, calcinations, etc., will be given supplementary to the work in chemistry. The manufacture of official and extra-official preparations will be increased with especial reference to such modern preparations as are employed in this country and abroad in the various surgical specialties: Dermatology, Ophthalmology, Laryngology, Gynecology, etc. Extemporaneous compounding will extend over the more elaborate forms of dosage preparations and to prescriptions of the most eminent practitioners.

The lectures will also comprise Food and Drug Legislation; Principles and Scope of Food and Drug Laws, Principles of Dietetics, the Relative Value of Foods and their Preparation. Organotherapy and the modern biologic products used in pharmacy and medicine will also be considered.

Text Book.—Physicians' Manual of the Pharmacopœia and the National Formulary, American Medical Association, Hallberg and Salisbury.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology,

structure and classification, together with their chemical composition, vital phenomena and chemical effects will be considered in the lectures. Attention will be called to the relation of bacteria to disease; the theories of infection and immunity will be discussed and due consideration will be paid to the ferments, ptomains, toxins and antitoxins. The action of various antiseptics, disinfectants and bactericidal substances will be noted.

Laboratory work will receive a large share of attention; students will be instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the study of the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, the study of colonies, the technic of cover-glass slips of the basic forms of bacteria and the study of their morphological characteristics.

The use of bacteriologic methods in the examination of milk, air and water will form an important part of the course.

Text Book.—Abbott's Bacteriology.

Applied Microscopy.—A thorough study of important powdered drugs and spices, with their substitutes and adulterants, will be made and opportunity will be afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both in the raw and cooked conditions. Practice in technical methods employed in the examination of these will be given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers and textiles

met with in commerce will be undertaken and instruction in the microscopic examination and identification of the urinary sediments: blood, pus, tube-casts and crystalline substances will form a part of the course.

Text Books.—Microscopical Methods, Gage; Applied Microscopy, Winslow; Microscopy of Vegetable Foods, Winton.

Field Work in Botany.—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, will be given and will afford practical field instruction in plant classification and analysis such as will be a valuable supplement to the lectures in that branch.

Text Book.—Gray's School and Field Botany.

THE SHORTER COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. Its efficiency is attested by the large attendance. Since the establishment of the college in 1859 nearly 5,000 persons have availed themselves of the advantages afforded by this course and more than 1,300 of our alumni have been awarded this degree. The Ph. G. course will be continued under the same conditions as heretofore. Its curriculum is fully described in the Annual Announcement. The instruction is so arranged as to require the attendance of each student

on three days each week and from twenty to twenty-one hours weekly during two annual sessions of thirty weeks each. This arrangement is most advantageous to drug clerks who desire to spend a part of their time in drugstores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses. The opportunities for such employment are unusually good in Chicago, owing to the fact that there are over a thousand drug stores in the city and suburbs accessible to the school.

ENTRANCE REQUIREMENTS

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must be graduates of accredited high schools or furnish evidence of a preliminary education equivalent thereto.

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age and have completed a common school course through eighth grade. Beginning with 1908 this requirement will be increased to one year of high school.

REQUIREMENTS FOR GRADUATION

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the Faculty.

For the degree of Graduate in Pharmacy this school has always required practical drug store experience. The actual time of attendance at the school, amounting to fourteen months, is credited as part of the four years of practical experience required for the degree. Candidates must have attained the age of twenty-one years and have satisfactorily finished the work leading to the degree. Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

FACILITIES FOR INSTRUCTION

The School of Pharmacy occupies a five-story brick building located at the northwest corner of Michigan Boulevard and Twelfth Street. The building was erected for a technical school and is exceptionally well adapted for its purpose. It has a frontage of fifty feet on Michigan Boulevard and one hundred and seventy feet on Twelfth Street and affords over forty thousand

square feet of floor space. The building is heated by steam, well ventilated and has excellent light from four sides. The location is convenient to various lines of transportation and is accessible from all parts of the city.

There are four lecture halls of ample size and six large, well lighted and well equipped laboratories, besides offices, students' room, store rooms, etc. The seating capacity of the lecture halls ranges from 125 to 350. The laboratories will accommodate 348 persons at one time. A detailed description of these facilities will be found in the Annual Announcement.

FEES AND EXPENSES

For the course leading to the degree of Graduate in Pharmacy:

First Year.

Matriculation	$ 5.00
Laboratory deposit	10.00
Alumni quiz	5.00
Tuition	75.00
Total	$95.00

Second Year.

Laboratory deposit	$10.00
Alumni quiz	5.00
Tuition	75.00
Diploma	5.00
Total	$95.00

For the courses leading to the degree of Pharmaceutical Chemist:

First Year.

Matriculation	$ 5.00
Laboratory deposit	15.00
Alumni quiz	5.00
Tuition	125.00
Total	$150.00

SECOND YEAR.

Laboratory deposit	$ 15.00
Alumni quiz	5.00
Tuition	125.00
Diploma	5.00
Total	$150.00

No charge is made for drugs, chemicals and other materials consumed by the student in the regular laboratory work.

The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat increased.

The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the school. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be readily and quickly made.

For further information or for matriculation blank, address

W. B. DAY, *Actuary,*

Michigan Boulevard and Twelfth Street, Chicago, Ill.

University of Illinois School of Pharmacy

CHICAGO COLLEGE OF PHARMACY

Announcement 1908 and 1909

REGISTER FOR 1907-1908

University of Illinois

THE STATE UNIVERSITY

URBANA-CHAMPAIGN.

EDMUND J. JAMES, PH. D., LL. D., PRESIDENT.

COLLEGES—*Literature and Arts* (Ancient and Modern Languages and Literatures, Philosophical and Political Science Groups of Studies, Economics, Commerce and Industry), *Engineering* (Architecture, Civil Engineering, Municipal and Sanitary Engineering, Electrical Engineering, Mechanical Engineering, Railway Engineering), *Science* (Astronomy, Botany, Chemistry, Geology, Mathematics, Physics, Physiology, Zoology). *Agriculture* (Animal Husbandry, Agronomy, Dairy Husbandry, Horticulture, Household Science). *Law, Medicine* (College of Physicians and Surgeons, Chicago). *Dentistry.*

SCHOOLS—Music, Library, Science, Pharmacy (Chicago). Graduate School, Summer Session of Nine Weeks.

United States Agricultural and Engineering Experiment Stations, State Laboratory of Natural History, Biological Experiment Station on Illinois River, State Water Survey, State Geological Survey.

Military Regiment, Military Band, Choral Society, Glee and Mandolin Clubs; Literary, Scientific and Technical Societies and Clubs; Young Men's and Young Women's Christian Associations.

425 members of faculty; 4,734 students; 628 free scholarships; 105,000 volumes in library building; 27 buildings.

CORRESPONDENCE WELCOMED. SEND FOR CATALOGUE.

W. L. PILLSBURY, Registrar

URBANA, ILLINOIS

CALENDAR — 1908-1909.

1908.

Sept. 21, Monday, Registration Day.

Sept. 22, Tuesday, 10 a. m., Junior Lectures begin.

Sept. 23, Wednesday, Senior Lectures begin.

Sept. 24, Thursday, Junior Laboratories open.

Sept. 25, Friday, Senior Laboratories open.

Nov. 26, Thursday, Thanksgiving Day, Holiday.

Dec. 19, Saturday, 5 p. m., Holiday Recess begins.

1909.

Jan. 4, Monday, 9 a. m., Instruction resumed.

Feb. 12, Friday, Lincoln Day, Holiday.

Feb. 22, Monday, Washington's Birthday, Holiday.

April 21, Wednesday, Term for Candidates for Graduate in Pharmacy closes.

April 29, Thursday, 2 p. m., Commencement.

June 4, Friday, Term for Candidates for Pharmaceutical Chemist closes.

THE COLLEGE BUILDING.

FORTY-NINTH ANNUAL ANNOUNCEMENT

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY

CHICAGO COLLEGE OF PHARMACY

Michigan Boulevard and Twelfth Street, Chicago, Illinois

SESSION OF 1908-1909

REGISTER FOR 1907-1908

CHICAGO . . . . PUBLISHED BY THE UNIVERSITY

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FACULTY

1907-08.

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EDMUND NORRIS GATHERCOAL, Ph. G., Instructor in Pharmacognosy, 36 East Twelfth Street, Chicago.

ALBERT HENRY CLARK, Ph. G., Instructor in Chemistry, 36 East Twelfth Street, Chicago.

HISTORY

The Chicago College of Pharmacy was founded by prominent pharmacists of Chicago and vicinity in 1859 for the purpose of advancing the practice of pharmacy. At that time there was no school of the kind west of the Alleghany mountains. Members and friends contributed money, books, apparatus, and supplies; teachers were secured and a course of lectures was instituted in October, 1859.

The first class, of but two students, was graduated in 1861. The war caused a suspension of the teaching, and the school was not reopened until 1870. The great fire, in 1871, destroyed the equipment, but pharmacists throughout Europe and America extended help to the institution, furnishing an excellent library and outfit of apparatus, which became the nucleus of the present complete equipment. In 1872 the instruction was resumed for the second time and has since continued without interruption.

"The Pharmacist," a monthly journal published by the College from 1866 until 1886, did much to advance the interests of the pharmacy in the West.

In 1880 the members and graduates of the College took an active part in the formation of the Illinois Pharmaceutical Association, which in the following year secured the passage of the pharmacy law.

The twenty-fifth anniversary of the founding of the College was signalized by the removal of the College to a larger building at 465 State street. Up to this time instruction had been given mainly by means of lectures, laboratory work being entirely optional. Labora-

tory courses in pharmacy, chemistry and vegetable histology were now made obligatory. A laboratory devoted entirely to prescription compounding was established in 1892. The excellence of the equipment in this department won for the College a medal and diploma at the World's Columbian Exposition.

The College was formally united with the University May 1, 1896, and is now conducted as the technical "School of Pharmacy of the University of Illinois." In the management of the School, the trustees and officers of the University have the assistance of an advisory board of pharmacists, elected by the registered pharmacists of the State, through the Illinois Pharmaceutical Association.

On the first of May, 1904, the University secured for the School of Pharmacy the building formerly occupied by the Chicago Manual Training School, at Michigan boulevard and Twelfth street. The new building provides much more commodious quarters than the School has ever before enjoyed and the facilities for instruction have been greatly increased.

The University of Illinois, the State University, organized in 1867 upon the foundation laid by the National Government in 1862, in an act intended to provide for "the liberal and practical education of the industrial classes in the several pursuits and professions of life," received from the National Government script for 480,000 acres of land. In order to secure the location of the University within its borders, Champaign County donated a large brick seminary building, about 1,000 acres of land and $100,000 in county bonds. In con-

sideration of this offer, the institution was located in the suburbs of Urbana, adjoining Champaign. The State Legislature has, from time to time, appropriated various sums for permanent improvements, as well as for maintenance. The present value of the entire property is $3,000,000. In 1890, by passage of a law supplementary to the act of 1862, the Congress of the United States provided further appropriations, which now amount to $25,000 annually.

ANNOUNCEMENT

The forty-ninth annual course of instruction in the University of Illinois School of Pharmacy will begin Tuesday, September 22, 1908, at ten o'clock in the morning.

The shorter course will continue thirty-one weeks, closing upon Thursday, April 29, 1909, on which day the graduating exercises will be held. The longer course will close June 4, 1909.

Aims and Scope

The aim of this school is to provide instruction for such young men and young women as desire to acquire the special training necessary for the successful practice of pharmacy.

The importance of a thoroughly scientific training in pharmacy, both to the pharmacist and to the public, is now fully and generally recognized. It is also generally acknowledged that the dispenser of medicines must

be held responsible for the purity and strength of his preparations, and that he must be truly a pharmacist and not merely a salesman.

No less evident is it that the necessary education can not be secured in the drug store alone, however valuable the experience gained there may be.

It is only by a thorough and systematic study of pharmacy and the sciences intimately related, study pursued under the guidance of experienced teachers and aided by the facilities for instruction which a well equipped school of pharmacy affords, that the student attains the knowledge and skill requisite to fit him for his professional career. It is evident, then, that suitable preparation for the life work of the practical pharmacist can be had only by giving due consideration to both sides of his education. This will include the actual experience in a dispensing pharmacy on one hand, and on the other such school training and laboratory practice as are provided by the best schools of pharmacy.

Should the student desire to carry his studies further, he may avail himself of the courses of instruction offered by the College of Science of the University, with assurance that credit will be given him for work satisfactorily finished at the School of Pharmacy.

The College Building

Is located on the northwest corner of Michigan boulevard and Twelfth street and is a substantial brick structure, five stories in height. The building was designed especially for school purposes. It has a frontage of fifty feet on Michigan avenue and one hundred and seventy

feet on Twelfth street. There are large windows on four sides, giving excellent light, and the rooms are heated by steam throughout.

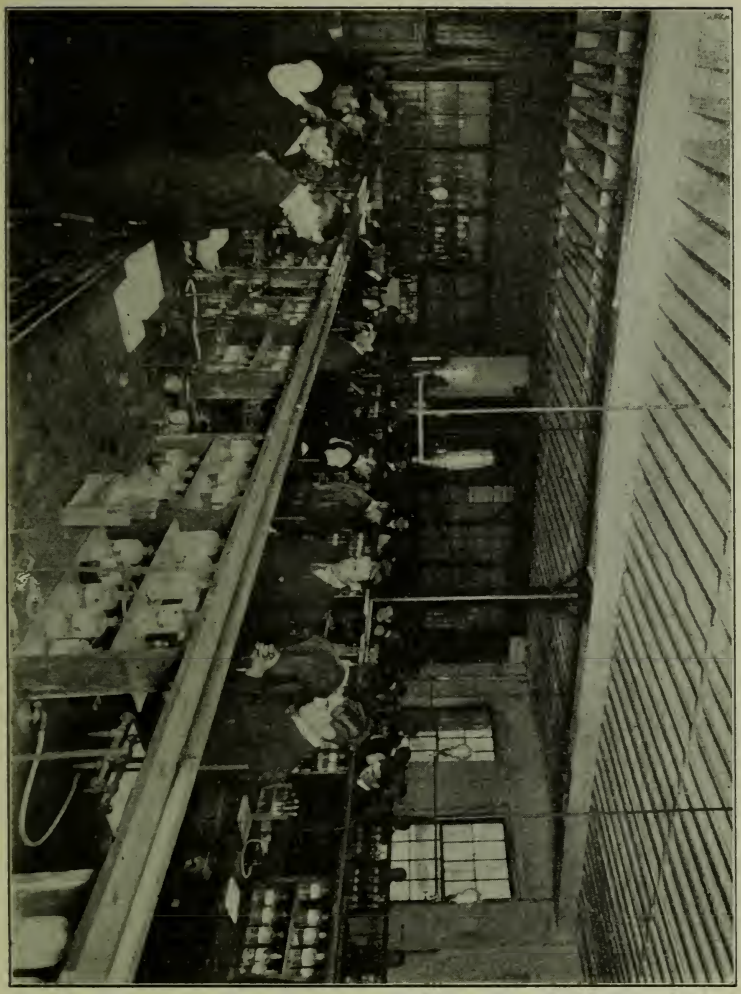
The location is an ideal one, near to the center of the city and convenient to the various lines of transportation, yet removed from the noise and bustle of the business district. Opposite the School is Grant Park, in which is located the Art Institute and where the Field Museum and Crerar Library will soon be permanently placed. In addition to the attractions offered by these institutions, the park itself provides a splendid playground.

A half block east of the building is the Illinois Central Depot, and one block west are the Cottage Grove avenue, the Indiana avenue and the Twelfth street surface lines, and the Twelfth street station of the South Side Elevated Railroad.

On Michigan avenue, immediately south of the School, are to be found some of the best low-priced boarding and rooming places in the city. Satisfactory accommodations may be readily secured within a short distance of the School.

The Lecture Halls

Are four in number and are arranged one above the other, occupying the entire east end of the building. The seating capacity of these rooms ranges from one hundred and fifty to two hundred persons. These halls have both south and east light from many windows and are provided with ample blackboard space. Preparation rooms for the use of the teachers adjoin each hall. So



THE QUALITATIVE ANALYTICAL LABORATORY.

far as possible, the lecture hall and laboratories devoted to each subject are on the same floor; thus the pharmaceutical laboratories and lecture hall occupy the entire fourth floor, the chemical laboratories and lecture hall the second floor.

The Laboratories

Are seven in number, including a laboratory for qualitative analysis, for quantitative analysis, for advanced chemistry, for pharmacognosy, for bacteriology, for general pharmacy, and for dispensing. The total capacity of these laboratories is sufficient for the accommodation of 384 students, working at one time.

The Qualitative Laboratory

Is 43 by 51 feet in size, has both north and south light, is provided with work-stands for seventy-two students, and has four times this number of lock-drawers and lock-cupboards so as to accommodate a class of two hundred and eighty-eight students, divided into four sections, and allow each student to have his apparatus under lock and key. Each work-stand is supplied with gas, water, acid-proof sink and retort stand. Aside from the individual kit furnished to each student, the laboratory is provided with other apparatus for use by the students in common.

The Quantitat-ive Laroratory

Is 35 by 48 feet in size and has light from three sides. It is situated at the west end of the second floor of the building and is supplied with work-stands for classes

THE QUANTITATIVE ANALYTICAL LABORATORY.

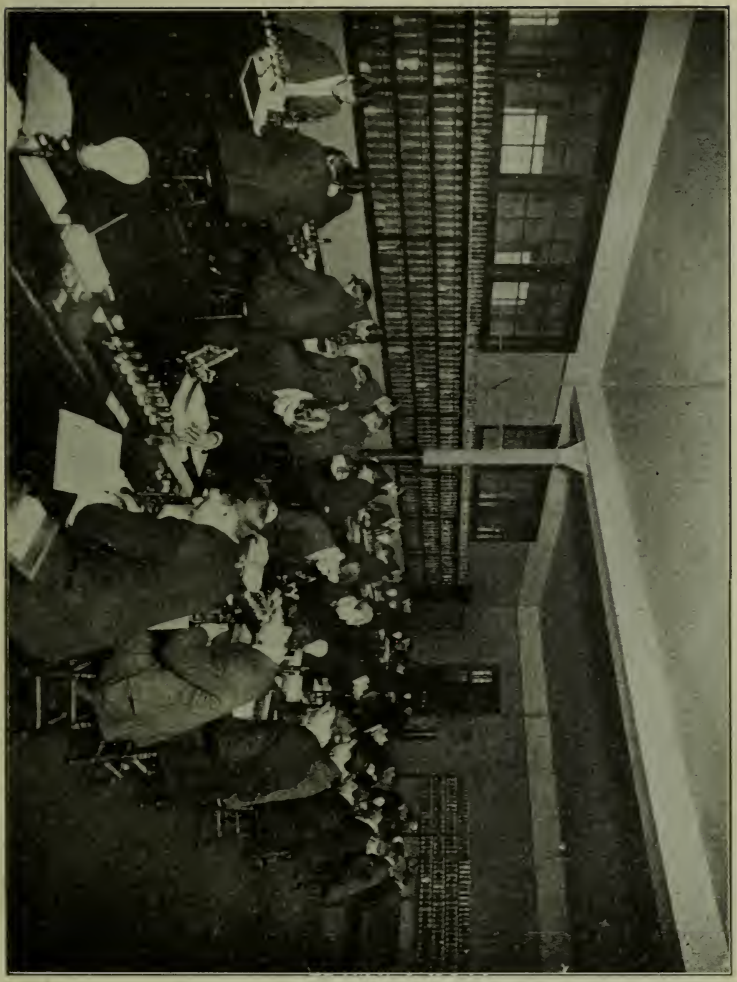
of seventy-two students, each stand having a complete equipment. Twelve analytical balances are provided for class use and a well selected chemical library is freely accessible to students.

The Laboratory for Advanced Chemistry

Is 21 by 40 feet in size, has excellent light and is equipped for classes of sixteen students. This laboratory is exclusively for students who are taking the course for the degree of pharmaceutical chemist.

The Laboratory for Pharmacognosy

Is 26 by 51 feet in size, situated on the third floor, is well lighted and has ample blackboard space. Desks are provided for sixty-eight students. Fifty-eight compound microscopes, magnifying from seventy-five to five hundred diameters, form a part of the general equipment. Each student is provided with an individual outfit, consisting of reagents, mounting media, slides, covers, forceps, section cutter, magnifier, and other necessary apparatus. This room also contains the Materia Medica Cabinet of over three hundred samples of crude drugs, to which students have access. Here are also a collection of two hundred rare drugs, mostly from Central and South America, and another collection of five hundred and fifty-three specimens, embracing the drugs official in the pharmacopœias of France, Germany, Great Britain, and Scandinavia. Other features are a large number of illustrations of medicinal plants and a very extensive herbarium, the latter collected by Professor Bastin and



THE LABORATORY FOR PHARMACOGNOSY.

his assistants during his connection with the botanical department of this college. It numbers several thousand specimens, and a sample of nearly every plant growing in this section of the country and many from the Southern States and from the far West may be found in this collection.

The Laboratory for Bacteriology

Is also situated on the third floor and is 21 by 40 feet in size. It is supplied with sterilizers, incubators and the usual bacteriological equipment. Eighteen compound microscopes provided with Abbe condensers and immersion objectives form part of the equipment, to which a projection microscope has recently been added.

The Pharmaceutical Laboratory

Occupies a room 43 by 51 feet in size and situated on the fourth floor of the building, and having both north and south windows. Work-stands are provided for eighty students, with lockers for three times that number. Each work-stand is four feet long and is equipped with water, sink, sand bath, gas, retort stand and water bath. The individual kit furnished to each student includes percolators, graduates, precipitating jar, bunsen burner, florence flasks, worm-condenser, mortars, etc. Collections of chemical and pharmaceutical products, interesting files of prescriptions and a complete working library are also to be found here.

THE GENERAL PHARMACEUTICAL LABORATORY.

The Dispensing Laboratory

Is situated at the west end of the fourth floor and has light from three sides. This laboratory is 32 by 47 feet in size and is fitted with an equipment especially designed for instruction in the art of compounding and dispensing prescriptions. The arrangement of counters and shelves is such as to avoid interference between the operators during the manipulations, and affords the director an unobstructed view of the entire class. The space for each operator is similar to a part of a well-arranged prescription department of a pharmacy. The laboratory will accommodate classes of forty students working at once.

The Library

Adjoins the office and contains about two thousand volumes, including, in addition to the usual works of reference, many rare books. Complete files of the leading pharmaceutical periodicals form an important feature of the library and sets of the Proceedings of the American Pharmaceutical Association and of the British Pharmaceutical Conference provide a valuable supplement to these.

The Students' Rooms

Are two. A reading room is situated on the first floor and is suitably equipped with chairs and tables. A locker room on the third floor is provided with 238 steel lockers for the use of students in caring for coats, hats and books.

Admission

Applicants for admission to the course leading to the degree of Graduate in Pharmacy must be at least seventeen years of age and must furnish evidence of having completed one year of work in an accredited high school or of possessing the full educational equivalent of this.

Applicants for admission to the course leading to the degree of Pharmaceutical Chemist must be at least seventeen years of age and must be graduates of accredited high schools or furnish evidence of a preliminary education equivalent thereto.

The entrance requirements of this school are those adopted by the American Conference of Pharmaceutical Faculties, of which this School is a member.

Advanced Standing

Students who have pursued courses of study in other recognized colleges of pharmacy will be given credit for such portions of their work as are equivalent to the work required by this College.

Special Students

Registered pharmacists, assistants or apprentices of Illinois or of other states having equal requirements may be admitted as special students *not candidates for a degree* if unable to meet the foregoing educational requirements. It is to be distinctly understood, however, that work done as a special student will not count toward a degree.

Requirements for Graduation

The candidate for the degree of graduate in pharmacy must be twenty-one years of age, have had four years' practical experience in pharmacy, including the period of attendance at college, and must have attended two annual courses of instruction, the first of which may have been in some other recognized college or school of pharmacy. He must have attended regularly the laboratory and lecture courses of this College, and have satisfactorily finished the work required.

Students who have successfully met the scholarship requirement, but are lacking in age or in practical experience will receive a certificate and will be awarded the diploma when the requirements of age and experience are satisfied.

In conformity with the usual custom of pharmaceutical schools, drug store experience is not made a requirement for the degree of Pharmaceutical Chemist. Students who have satisfactorily completed the course will be awarded the degree upon the recommendation of the Faculty.

Courses of Instruction

THE SHORTER COURSE

The course leading to the degree of Graduate in Pharmacy appeals especially to young men and women who desire to qualify themselves to become pharmacists. The instruction is so arranged as to require the attendance of each student on three days of each week and from twenty to twenty-one hours weekly during two

annual sessions of thirty weeks each. This arrangement is advantageous to drug clerks who desire to spend a part of their time in drug stores while attending school, thereby adding to their practical experience and at the same time earning a part or all of their living expenses.

The system of teaching includes lectures, demonstrations, recitations, written and oral examinations, as well as individual instruction in actual work in operative and dispensing pharmacy, analytical chemistry, use of the compound microscope, etc. Much time is devoted to laboratory practice.

Pharmacy—Junior Year

1. *Introductory.*—The lectures begin with the consideration of pharmacy in its historical, professional, and legal relations, with an exposition of metrology, including the metric system and specific gravity.

2. *Operative Pharmacy.*—The various processes are theoretically considered according to their relation to physical laws and phenomena. Their applications in pharmacy are presented in logical order and exemplified by practical demonstrations in the exhibition and use of the various apparatus, utensils and devices employed in pharmaceutical practice. Heat, its source and uses, as involved in the many processes for effecting physical and chemical changes in solids and liquids. Solution, its phenomena, effects and causes; related processes with their dependent separative operations, filtration, extraction, and their modifications.

3. *Galenical Preparations of the United States Pharmacopoeia.*—These are grouped together according to the methods of preparation and their strengths. Especial reference is made to the synonyms, common uses and doses. The preparations of the foreign pharmacopœias most commonly employed in America are considered in this connection. This work closes with a review and prognosis of the extractive preparations of the pharmacopœia.

4. *Pharmacy of the Inorganic Substances.*—The elements, their inorganic compounds and preparations. One or more typical specimens of the compounds or their preparations belonging to each group are prepared directly before the class, and the various points in the process carefully demonstrated to serve as a guide when the subject is considered in the laboratory. Specimens of the various compounds and preparations are exhibited at the lectures and their pharmaceutical and technical uses are described.

5. *Pharmaceutical Laboratory.*—The exercises in the laboratory follow closely the lectures, thus serving to illustrate the theoretical study and to emphasize the practical points and important considerations of operative pharmacy. One or more preparations illustrative of the various processes and their operations are made by each student under the supervision of the director.

6. *Dispensing Laboratory.*—The exercises in this laboratory comprise the preparation of the most important solutions and mixtures of the United States Pharmacopœia and the National Formulary, intended for extemporaneous compounding. Such preparations are

selected as will exemplify all the common phases of compounding and involve illustrations of the art of manipulation. Especial care is given to the correction of crude and otherwise faulty methods of work and to the proper and expeditious use of apparatus and implements.

Chemistry—Junior Year

1. *Theoretical Chemistry.*—As an introduction to the consideration of chemical theories, a series of physical phenomena, such as vaporization and condensation, and of chemical actions, such as the formation of new substances, combustion, reduction and oxidation, are studied and used to bring out the conception of elementary and compound matter. Next, the laws of constant and multiple proportions and of gaseous volumes, the laws of Boyle, of Charles and of Avogadro, are discussed, and attention is directed to the atomic theory based thereon. The student is now prepared to study intelligently the use of chemical symbols, formulæ and equations, and the weights entering into chemical reactions. The general properties of acids, bases and salts are then described, and this leads to a brief discussion of mass action, dissociation, solution, electrolysis, electrolytic dissociation and the ions. These lectures are supplemented with laboratory exercises throughout; here particular attention is given to stoichiometry, and in a number of typical reactions the weights of the several compounds used are determined and compared with the amounts demanded by theory.

2. *General and Inorganic Chemistry.*—This course is devoted to the systematic consideration of the ele-

ments and their inorganic compounds. Here also certain typical compounds and reactions are studied in such a manner as to more fully explain the chemical theories presented in Course 1.

3. *Qualitative Analysis.*—The work begins with the analytical reactions of the more important inorganic acids, and proceeds to the systematic consideration of the basic elements, concluding with the identification of the constituents of unknown complex mixtures.

Materia Medica and Botany—Junior Year

1. *Botany.*—The aim of the instruction in this branch is to give the student a comprehensive knowledge of the subject as related to the practice of pharmacy or medicine, and the subject matter is carefully winnowed with this object in view; all parts of the plant, their development and functions, are fully illustrated and described, and thorough drilling is given in plant analysis and classification.

2. *Vegetable Histology.*—This is a study of the microscopic structure of plants; its aim is to familiarize the student with their minute anatomy—the individual cell, the aggregation of cells forming tissues, and the grouping of these tissues into tissue systems.

As far as possible, plants best illustrating the subject are chosen from those which are medicinal. Students become familiar with cell structure, cell contents, and tissue formation, and are thus enabled to detect adulteration or foreign admixture in powdered drugs.

3. *Materia Medica.*—Instruction in Materia Medica is given by lectures and recitations. The drugs derived from the animal kingdom are first considered, these being presented in zoölogical order. The habitat, commercial history, method of preparation, medical properties, uses and doses of each receive due attention.

Toward the close of the term, a number of lectures are devoted to the subject of Toxicology, embracing the symptoms of poisoning by and the antidotal treatment for the principal toxic drugs.

4. *Pharmacognosy.*—This course consists in the study of crude drugs in the laboratory. Typical specimens of these drugs are given for recognition and description, and characteristic features are carefully indicated. Review exercises in identification are held at regular intervals.

5. *Physiology.*—The intelligent pharmacist is expected to be acquainted with the physiological effects of the medicines and poisons which he handles. Hence Physiology has become recognized as a regular part of the curriculum.

In the course the peculiar needs of the students are carefully considered. The chief facts of anatomy and histology and the general principles of physiology and hygiene are clearly and concisely presented. Charts, specimens from the dissecting room and the human skeleton are used to illustrate the subject. The more common morbid conditions and the action of the chief drugs used for their relief are mentioned and practical instruction is given in caring for emergency cases until medical or surgical help arrives.

Pharmacy—Senior Year

7. *Extractive Preparations.*—The simplest forms, infusions and decoctions, are first considered, then those requiring more elaborate treatment, the tinctures, fluid extracts, resins, etc. These are presented in progressive order, their pharmaceutical relations illustrated and relative strengths contrasted by grouping them according to their drug strength. This system is of advantage for computing dosage of all preparations upon a drug basis.

8. *Mixtures of Solids* are next considered, also in the progressive order, beginning with the simplest preparations for internal use, powders, and advancing to the more complicated forms, masses and pills, confections and troches, together with the important unofficial forms, such as capsules, cachets, tablets, etc.

The preparations for external use are presented in the order of their consistence: Ointments, cerates, suppositories and plasters, their relative fusibilities, indicating their respective therapeutic uses, and hence the pharmaceutical methods involved in their elaboration.

9. *Pharmacy of the Organic Substances.*—These are treated with especial reference to their preparation, purification, identity, purity and strength, and their pharmaceutical preparations, medicinal uses and doses. They are considered in order, beginning with the cellulose group, its modifications, starches, sugars, alcohols and acids, and their derivatives, and leading up to the coal-tar derivatives and the synthetic products.

The oils, fixed and volatile, with the oleoresins, resins, gum resins, balsams, and exudation products generally, the acids, alkaloids, and proximate principles are

so grouped as to afford the most practical view of their pharmaceutical and medicinal properties and uses.

The consideration of the crude drugs classified according to their constituents, their unofficial preparations, the animal products and derivatives, the ferments and their functions, the serums and their value as pharmaceutical and medicinal agents, ends the course.

10. *Prescriptions.*—Preliminary to the work in dispensing, prescriptions are considered in their construction, orthography, interpretation, posology, and in the magistral forms for the therapeutic uses met with in dispensing, concluding with a review of the incompatibilities, exemplified from the exercises in dispensing, and with a study of bona fide prescriptions requiring especial interpretation.

11. *Pharmaceutical Laboratory.*—This work includes the preparation of such mixtures of solids for internal and external use as are adapted to manufacture on a small scale and to be kept on hand in the pharmacy, including triturations, troches, pills, oleates, ointments, cerates, suppositories, and plasters; as well as of the more important extractive preparations, tinctures, extracts, fluid extracts, and resins. Also the manufacture of scaled and granular salts and unofficial preparations of the National Formulary.

12. *Dispensing Laboratory.*—This course begins with the preparation of mixtures of solids for internal use, adapted to extemporaneous compounding; powders in their various modifications, capsules, cachets, etc., tablets, triturates and pills with various coatings. Those for external use, including ointments, plasters and sup-

positories, are also prepared by the various methods in vogue.

Toward the close of the term, mixtures, typical of all ordinary and of many extraordinary prescriptions are prepared, and the methods for the prevention or modification of incompatiblities, etc., are considered. Drills in prescription writing, Latinity and abbreviations, foreign synonyms and directions, posology and the finishing of packages are features of the exercises.

Chemistry—Senior Year

4. *Quantitative Analysis.*—An introduction to the principles involved in quantitative analysis is first given, after which is undertaken the quantitative estimation of the more important acids and bases. Later, the purity and strength of various pharmaceutical chemicals are determined. During this course the student becomes familiar with all the volumetric tests required by the pharmacopœia. While preference is given to volumetric analysis, ample opportunity is afforded for practice in gravimetric analysis, including determinations and separations.

5. *Organic Chemistry.*—The course begins with the consideration of general characteristics of organic compounds, the methods of proximate and ultimate analysis, determination of vapor density, molecular weights, and physical constants; after which the more important organic substances are treated in proper sequence, particular attention being given to those which are of especial importance in pharmacy and medicine.

Materia Medica—Senior Year

6. *Materia Medica.*—This course is confined to vegetable materia medica. It begins with the consideration of the lowest drug-yielding cryptogamic plant and proceeds through the various natural orders and families of the entire vegetable kingdom. The characters of the plants, their habits, products, commercial history of the part employed, proximate principles, preparations, therapeutic action and doses are all mentioned and dwelt upon according to the importance of the drug. Attention is given, not only to those drugs included in the pharmacopœia, but to all used domestically, properly given within this scope.

7. *Pharmacognosy.*—The instruction in this branch is conducted in the same manner as during the Junior Year (page 24), this laboratory study closely following the lectures on Materia Medica.

8. *Microscopy.*—This branch deals with the technique of the microscope, the history of the development of the instrument, the optical principles involved in its construction, the function of each part, and the laws of refraction and reflection. Instruction and practice are given in the operations of lighting, focusing, drawing, measuring, cutting, mounting objects for permanent use, the application of micro-chemical tests, staining, etc. The various accessories, including such attachments as the polariscope and spectroscope, are shown and explained.

9. *Vegetable Histology.*—The work in this course consists in the application of the knowledge of histological structure and microscopical methods already gained to the study of vegetable drugs. As far as possible, drugs

such as are typical of the various plant organs are selected for study. The course closes with an outline of the methods employed in the detection of adulterations in powdered drugs and the practical application of thes methods in the examination of commercial drugs.

THE LONGER COURSE

To meet the demand for special training on the part of students who desire to pursue more extended courses in pharmaceutical chemistry, applied microscopy and bacteriology or to prepare themselves for positions under the Food and Drugs Act, this School offers a course leading to the degree of Pharmaceutical Chemist and comprising two annual sessions of thirty-six weeks each, with instruction on five days each week, and amounting to about thirty-three hours weekly or a total of 2,300 hours in the entire course.

This course is partly concurrent with the seven months' course leading to the Ph. G. degree and includes all the didactic instruction given in the latter. It consists largely of laboratory practice and embraces, in addition to the curriculum of the course for the degree of Graduate in Pharmacy (see pages 21 to 29), the following subjects:

Qualitative Analysis.—The general scope of the course in qualitative analysis is the same as that of the Ph. G course (Chemistry 3). Special attention is given to the application of ionization, hydrolysis and molecular concentration or mass action to analytical methods. After a thorough course in the analysis of complex inorganic

mixtures the tests of purity prescribed by the U. S. P. for the inorganic compounds are taken up; special attention is given to the detection of dangerous impurities such as arsenic, copper, lead, etc. The course concludes with a study of the detection of metallic elements and inorganic acids in the presence of organic compounds, and the recognition of carbon, hydrogen, nitrogen, etc., in organic compounds.

Text Book—Qualitative Analysis, Prescott & Johnson.

Quantitative Analysis.—This course covers the ground included in the course in quantitative analysis (Chemistry 4) of the shorter course. Particular stress is laid on gravimetric estimations. Throughout the course the volumetric methods laid down in the pharmacopœia are compared with gravimetric methods and applied to substances of known purity.

Text Books—Quantitative Analysis Select Methods, Clowes & Coleman; Volumetric Analysis, Coblentz.

Organic Analysis and Proximate Assays.—Simultaneously with or closely following the course in organic chemistry the analytical consideration of the more important classes of organic compounds is taken up. The course includes the detection and estimation of alcohols (detection and estimation of ethyl alcohol in pharmaceutical preparations, detection of methyl alcohol in ethyl alcohol, etc.), aldehyds (detection and estimation of formaldehyds, class reactions for aldehyds, estimation of citral in lemon oil), organic acids (recognition of tartaric, citric, oxalic acids, estimation of tartaric acid in effervescing salts), esters (general methods of recogni-

tion), analysis of oils and fats, carbohydrates (recognition of sugars, estimation of glucose, sucrose and starch), phenols (recognition of phenols, estimation of Phenol U. S. in mixtures). The course concludes with a study of the isolation and recognition of alkaloids and their estimation in drugs and pharmaceutic products.

Text Books—Outline in Quantitative Analysis, Puckner; U. S. Pharmacopœia.

New Remedies.—Following the course in organic chemistry (Chemistry 5), the many new remedies, especially the so-called "synthetics," are taken up by classes. In order that pharmacists may be abreast of the times and be competent to furnish to physicians and others interested reliable information in regard to these new remedies, their chemical constitution, derivation, tests for identity and purity, incompatibilities together with their synonyms and trade names.

Text Books—New and Non-Official Remedies; American Medical Association.

Analysis of Urine.—In a course of lectures the chemistry of the normal and pathological constituents of the urine are discussed and the application of the methods of analysis previously studied to the examination of urine brought out. In the laboratory the detection and estimation of sugar, albumen, urea, etc., is studied. This course is given concurrently with the microscopic examination of urinary deposits.

Food and Sanitary Analysis.—In this course the general composition of foods is discussed, also the methods of preparation and preservation and the use of preservatives receive attention. The methods of estimation studied

in previous courses are applied to milk, butter, fats, oils, baking powder and beverages, and are supplemented by special methods.

The composition of mineral waters and their analysis will next be considered, also the sanitary analysis of water will be taken up practically in the laboratory.

Pharmacy.—The work in Pharmacy will be chiefly an elaboration of the Ph. G. course.

Operative Pharmacy will be extended to the determination of physical constants; specific gravities, solubilities, boiling points, melting points, the testing and corrections of weights, measures, thermometers, etc. Practical exercises in crystallization and precipitation, in percentage calculations in products of oxidation and reduction, calcinations, etc., will be given supplementary to the work in chemistry. The manufacture of official and extra-official preparations will be increased with especial reference to such modern preparations as are employed in this country and abroad in the various surgical specialties: Dermatology, Ophthalmology, Laryngology, Gynecology, etc. Extemporaneous compounding will extend over the more elaborate forms of dosage preparations and to prescriptions of the most eminent practitioners.

The lectures will also comprise Food and Drug Legislation; Principles and Scope of Food and Drug Laws; Principles of Dietetics, the Relative Value of Foods and their Preparation. Organotherapy and the modern biologic products used in pharmacy and medicine will also be considered.

Text Book.—Physicians' Manual of the Pharma-

copœia and the National Formulary, Hallberg and Salisbury.

Bacteriology.—The general scope of bacteriology; the history of the development of the science, the general characteristics of bacteria, their morphology, structure and classification, together with their chemical composition, vital phenomena and chemical effects will be considered in the lectures. Attention will be called to the relation of bacteria to disease; the theories of infection and immunity will be discussed and due consideration will be paid to the ferments, ptomaines, toxins and antitoxins. The action of various antiseptics, disinfectants and bactericidal substances will be noted.

Laboratory work will receive a large share of attention; students will be instructed in the preparation of culture media and staining solutions, the methods of cleaning and sterilizing glassware and nutrient media, the study of the effects of different temperatures on the growth of different bacteria, the methods of making plate cultures, the study of colonies, the technic of cover-glass slips of the basic forms of bacteria and the study of their morphological characteristics.

The use of bacteriologic methods in the examination of milk, air and water will form an important part of the course.

Text Book—Abbott's Bacteriology.

Applied Microscopy.—A thorough study of important powdered drugs and spices, with their substitutes and adulterants, will be made and opportunity will be afforded the student to become familiar with the microscopic appearance of the more common foodstuffs, both

in the raw and cooked conditions. Practice in technical methods employed in the examination of these will be given, such as micrometry, use of the micropolariscope, application of special reagents, etc. A comparison of the various hairs, fibers and textiles met with in commerce will be undertaken and instruction in the microscopic examination and identification of the urinary sediments: blood, pus, tube-casts and crystalline substances will form a part of the course.

Text Books.—Microscopical Methods, Gage; Microscopy of Vegetable Foods, Winton.

Field Work in Botany—A series of botanical excursions, intended to familiarize the student with such medicinal plants as our flora provides, will be given, and will afford practical field instruction in plant classification and analysis such as will be a valuable supplement to the lectures in that branch.

Text Book.—Gray's School and Field Botany.

GENERAL INFORMATION.

Text Books and Works of Reference.

The books listed below have been selected as the best suited for the students' use in connection with the shorter course. The student is advised to acquire all of them if practicable; he is obliged to provide himself with all those the titles of which are printed in italics.

Chemistry.—*Smith's College Chemistry,* Long's Analytical Chemistry, Sadtler and Coblentz's Phar-

maceutical Chemistry, *Puckner's Analytical Chemistry, Noyes' Organic Chemistry,* Prescott and Johnson's Qualitative Analysis, Coblentz's Volumetric Analysis.

MATERIA MEDICA AND BOTANY.—*Culbreth's Materia Medica, Gray's School and Field Botany,* Bastin's College Botany, Gage's Microscopical Methods, *Kimber's Physiology,* Stevens' Plant Anatomy, Students' Standard dictionary, Dorland's or Gould's Medical Dictionary.

PHARMACY.—*The Pharmacopœia,* United States or National Standard Dispensatory, Remington's Practice of Pharmacy, Coblentz's Handbook of Pharmacy, Caspari's Pharmacy. Scoville's Art of Compounding.

The additional books required for the longer course are mentioned in the description of the curriculum, pages 30 to 35.

PRIZES.

THE ALUMNI MEDAL.—The Alumni Association offers a gold medal as a prize to the senior student who attains the highest general average, provided the average is not less than ninety-five per cent. No one shall be considered a competitor for this prize who is not taking a full course.

THE BIROTH PRIZE.—Mr. Henry Biroth offers a prize consisting of a fine compound microscope to the student presenting the best collection of notes on Materia Medica and Microscopy, provided that in the opinion of the director of the laboratory the finished slides and work done are sufficiently meritorious. Scholarship, attendance, attention and general neatness will be taken into account in awarding this prize.

THE BECKER PRIZE.—The L. A. Becker Company offers a prize consisting of a chemical cabinet, comprising a mahogany case with shelves and drawers suitable for reagents and apparatus for pharmaceutical testing, to be awarded to the senior student who attains the highest standing in pharmacy.

AMERICAN PHARMACEUTICAL ASSOCIATION MEMBERSHIPS.—Two such memberships are offered by members of the faculty: One of these prizes is awarded for second highest standing in pharmacy, the other for excellence in pharmacognosy.

FEES AND EXPENSES.

MATRICULATION.—The fee for matriculation is five dollars, and is required of junior students upon entering the class for the first time and of senior students who have taken the first year's work elsewhere.

TUITION FEES.—The tuition fee for each year of the shorter course is seventy-five dollars. For each year of the longer course the fee is one hundred twenty-five dollars. The payment of this fee entitles the purchaser to one continuous course of lectures and laboratory instruction in all departments. The tuition fee covers all drugs, chemicals and other materials consumed by the student in the laboratories, no extra charge being made for these. *Special students* may, by permission of the faculty, take any part of the course at a proportionate tuition fee, providing that such fee shall not be less than twenty-five dollars.

LABORATORY DEPOSIT.—Chemical and pharmaceutical apparatus and supplies, together with microscopes and other implements required in the work of the course,

are furnished by the College, and to cover breakage or damage to such apparatus as well as needless or willful damage to fixtures or building each student in the shorter course is required to deposit ten dollars with the Actuary. For the longer course this deposit is fifteen dollars. From this deposit will be deducted the charges for apparatus broken, missing or not returnable, together with a class charge for such apparatus as is used by the class in common, also a locker fee of one dollar for locker in the coat-room, if used by the student. The remainder will be refunded at the close of the term.

A Diploma Fee of five dollars will be required.

Alumni Quiz Fee.—The fee for the recitations conducted by the instructors under the auspices of the Alumni Association is five dollars.

Payment of Fees.—The fees are payable in advance. Students unable to meet this requirement must make satisfactory arrangements with the Actuary at the beginning of the course.

Board and Lodging.—The expense of board and room together is from $5 to $6 per week. They may be had separately if desired. There are many satisfactory boarding and rooming places within a convenient distance from the school. Information regarding these will be supplied by the Actuary. Students are advised to defer engaging board and room until they arrive in the city, when arrangements can be readily and quickly made.

Books.—The expense of books is moderate. About twenty-five dollars will purchase all the books required for the Ph. G. course. For the longer course the expenditure for books will be somewhat more.

Selection of Seats.

Seats in the lecture halls and desks in the laboratories will be assigned to students by the Actuary, at the opening of the session, in the order in which students are enrolled. To enroll, junior students will fill out the matriculation blank and forward it to the Actuary, together with the matriculation fee of five dollars; senior students will make a payment on tuition account of five dollars. It is of advantage to students to matriculate early.

Opportunities for Employment.

The arrangement of the hours in the shorter course is such as to permit students who so desire to serve a part of their time in stores, thereby defraying their personal expenses.

The Actuary keeps a register of students desiring employment and of pharmacists wishing to employ students. Students desiring employment are invited to correspond with him.

There are among the one thousand drug stores of Chicago and suburbs, many model pharmacies where the student may obtain valuable experience.

The compensation for such employment will average from five to eight dollars per week.

State Registration.

To become a registered pharmacist in Illinois, it is necessary to pass an examination before the State Board of Pharmacy, no diplomas being recognized.

The diploma of this school is, however, accepted in lieu of examination for registration in about ten states and territories, and in several other states including New York and Pennsylvania, where graduation prerequisite laws are in force, this school is among the schools recognized and its diploma admits to the examination.

The amendments to the Illinois Pharmacy Law, in effect July 1, 1907, give credit, as a part of the "practical experience in compounding drugs," required by the law, for the actual time of attendance at a school of pharmacy but not to exceed two years for registered pharmacist or one year for registered assistant pharmacist.

For further information or for matriculation blank, address.

W. B. Day, *Actuary*,
Michigan Boulevard and Twelfth Street, Chicago, Ill.
Or W. L. Pillsbury, *Registrar,* Urbana, Ill.

GRADUATES, 1908

Degree of Graduate in Pharmacy

Fred Kramer Anderson	White Sul. Spgs., Mont.
Harold Dudley Baldwin	Hampton, Iowa.
Amar Nath Banerjee	Benares City, India.
Wayne Crawford Denson	Minonk.
Raleigh Earel	Quincy.
Bruce Carr Frantz	Pekin, Ind.
Auburn Seth Kisner	Brownsville.
George Ferdinand Knick	Hutchinson, Minn.
Newman Kohn	Chicago.
Herbert Ernst Kraft	Chicago.
Henry August Langenhan	Ableman, Wis.
William Darrell Mottar	Chicago.
Alvrado Benson Owens	Savanna.
Adolph Vaclav Pavlicek	Chicago.
James Patrick Renaud	Chicago.
Charles George Sells	Chicago.
Frank Edmund Shipman	Paris.
Roy Mont Soult	Fredonia, Pa.
Frank Bengal Stromer	Chicago.
Rexford De Tompkins	Mount Sterling.
Steward Franklin Voss	Assumption.
Stanley Ballenger Webster	Winslow.
Wyley Porter Williamson	Marietta, Ohio.
Frank James Zuck	Rockford.
Frank Alex. Crawford (Class of '06)	Oklahoma City, Okla.
Rudolph George Mrazek (Class of '06)	Chicago.
Martin Schupmann (Class of '06)	Chicago.
Claude Enoch Tilton (Class of '06)	Fairmount.
Karl Elliott Anderson (Class of '07)	Roberts, Wis.
Tisdale E. P. Furman (Class of '07)	Chicago.
George Julius Langheim (Class of '07)	Charlotte, Iowa.
Frank John McCabe(Class of '07)	Chicago.
Henry Pfaff, Jr. (Class of '07)	Chicago.
Edwin Theo. Schumm (Class of '07)	La Porte, Ind.

Certificates

Joseph Arnold Blatt	Chicago.
Leslie Ray Crawford	Nachusa.
Walter William Doerr	Chicago.
Otto August Fett	Chicago.
Delmar Nelson Fidler	Watseka.
Otto John Lorenz	Chicago.
Edward Emil Luken	Chicago.
Frederick James Lyons	Grand Junction, Mich.
Eugene Lester Miles	Chicago.
James Strachen Miller	Coal City.
Herman Lawrence Rauschert	Lake Mills, Wis.
William Emanuel Ruesch	Joliet.
Harry Garrison Skinner	Yates City.
Carl Frederick Stark	De Kalb.
John Joseph Staszak	Chicago.
John Joseph Urban	Chicago.

Class Honors, Excellence in Scholarship

Senior Class.

Raleigh Earel
Rexford De Tompkins
Harry Garrison Skinner
Harold Dudley Baldwin

Junior Class

Gustave Adolph Anderson
Leo E. Elliott
Charles Stulik
Clemence Zimmerman
William Ernst Ploetz
Henry Aloys Underriner
Schuyler Van Rensselaer Gross
Finis Hindman
John Fred Mueller
Roy Wheeler

Prizes

Raleigh Earel.....Alumni Medal
Harold Dudley Baldwin.....Biroth Prize
Rexford De Tompkins.....Becker Prize
William Emanuel Ruesch.....A. Ph. A. Membership in Pharmacognosy.
Wyley Porter Williamson.....A. Ph. A. Membership in Pharmacy.

LIST OF STUDENTS.

Session of 1907-1908

SENIORS.

Afremow, George .....Chicago.
Anderson, Fred Kramer.....White Sul. Sprgs., Mont.
Baldwin, Harold Dudley.....Hampton, Ia.
Banerjee, Amar Nath, L. M. S. (Calcutta University), 1901.....Bemares City, India.
Blatt, Joseph Arnold.....Chicago.
Bowden, William Turner, A. B. (Roger Williams University), 1905.....Chicago.
Cazel, Ernest Clyde.....Evanston.
Crawford, Leslie Ray.....Nachusa.
Dahlin, Horace Otto.....Pittsburg, Pa.
Davies, Byron Lake.....Chicago.
Denson, Wayne Crawford.....Minonk.
Doerr, Walter William.....Chicago.
Dunn, Everett Aldon.....Duquoin.
Earel, Raleigh.....Quincy.
Ferguson, William Allen.....Minooka.
Fett, Otto August.....Chicago.
Fidler, Delmar Nelson.....Watseka.
Frantz, Bruce Carr.....Pekin, Ind.
Ginnsy, Leo Aloysius.....Chicago.
Gray, Ralph Mortimer.....Chicago Heights.
Heimsath, Peter Albert.....Aurora.
Kisner, Auburn Seth.....Brownsville.
Knick, George Ferdinand.....Chicago.
Kohn, Newman.....Chicago.
Kraft, Herbert Ernest.....Chicago.
Kuflewski, Frank August.....Chicago.
Langenhan, Henry August.....Ableman, Wis.
Lorenz, Otto John.....Chicago.
Luckenbach, Walter Conrad.....Oconto, Wis.
Lukasek, Otto William.....Chicago.
Luken, Edward Emil.....Chicago.
Lyons, Frederick James.....Grand Junction, Mich.
Miles, Eugene Lester.....Chicago.
Miller, James Strachen.....Coal City.
Mottar, William Darrell.....Springfield.
Munns, Elmer Edward.....Chicago.
Owens, Alvrado Benson.....Savanna.
Pavilcek, Adolph Vaclav.....Chicago.
Polk, John Knox.....Versailles, Ky.
Powell, Thomas Benton, Jr.....Vienna.
Propp, Charles.....Chicago.

Rauschert, Herman Lawrence.....Lake Mills, Wis.
Renaud, James Patrick.....Chicago.
Ruesch, William Emanuel.....Joliet.
Schreiber, Paul Fred.....Chicago.
Sells, Charles George.....Chicago.
Serritella, Michael Archangel.....Chicago.
Shipman, Frank Edmund.....Paris.
Skinner, Harry Garrison.....Yates City.
Soult, Roy Mont.....Fredonia, Pa.
Staman, William J.....St. Joe, Ind.
Stark, Carl Frederick.....DeKalb.
Staszak, John.....Chicago.
Stromer, Frank Bengal.....Chicago.
Stuker, Conrad Stephan.....Chicago.
Tervehn, William Richard.....Peoria.
Tomlinson, Walter Edmund.....Galesburg.
Tompkins, Rexford De.....Mt. Sterling.
Urban, John Joseph.....Chicago.
Voss, Steward Franklin.....Assumption.
Webster, Stanley Ballenger.....Winslow.
Williamson, Wyley Porter.....Marietta, O.
Wirth, George Carl.....Duluth, Minn.
Zuck, Frank James.....Rockford.

JUNIORS.

Alford, James Bell.....Columbus, Miss.
Anderson, Gustav Adolph.....Rockford.
Anderson, Mary Scott Leinbaugh.....Dallas City.
Annibale, Frank.....Chicago.
Arkins, James Elmer.....LaSalle.
Arthur, Howard.....Decatur.
Baker, Luther.....Astoria.
Barnett, Irving Francis.....Chicago.
Battaglia, Joseph.....Chicago.
Bazner, Gustav.....Chicago.
Beck, Frank Lewis.....Anderson, Ind.
Berg, Conrad August.....Roseland.
Beyermann, Hugo Frank.....Chicago.
Bills, Joseph LeRoy.....Shelton, Neb.
Bock, William.....Smithton.
Bruzewicz, Joseph.....Chicago.
Bujewski, Thaddeus John.....Chicago.
Buresch, Louis Albert.....Chicago.
Calabrese, Vincenzo.....Chicago.
Caldwell, Robert Henry.....Caledonia, Miss.
Carthan, William Arthur, A. B. (Morris Brown College), 1902.....East Macon, Ga.

Carvelli, John.....Chicago.
Cheleski, John Kosmer.....Chicago.
Cholewinski, Andrew Francis.....Chicago.
Cohn, David.....Springfield.
Cole, Arvelle Richard.....St. Louis, Mo.
Comes, Urban Volpert.....Chicago.
Conkey, Aaron W.....Blandinsville.
Conners, Harry.....Bellevue, O.
Cover, Augustus Fringer.....Toulon.
Cropper, Pearl Arthur.....Chicago.
Czaja, Leo Matthew.....Chicago.
DeMers, Octave Jay.....Assumption.
Downs, Cashes Clay.....Danville.
Eck, Charles Patt.....Chicago.
Edlund, Arthur.....Chicago.
Eicher, Anna.....Chicago.
Elliott, Leo E.....Chicago.
Elson, John LeRoy.....Chicago.
Englund, Arthur Theodore.....Escanaba, Mich.
Evans, Oliver Morton.....Decatur.
Fernholz, Emil Godfrey.....Harvard.
Fingl, Anton William.....Chicago.
Fingl, Edward George.....Chicago.
Fitzsimmons, LeRoy.....Muscantine, Ia.
Ford, Robert Emmett.....Denver, Colo.
Frauenhoff, Frederick Louis.....Aurora.
Frish, Frank Lawrence.....Chicago.
Gamalski, Joseph George.....Detroit, Mich.
Gans, Arthur.....Council Bluffs, Ia.
Gold, Hymen.....Chicago.
Golombiewski, John Peter.....Chicago.
Gross, Schuyler Van Rensselaer.....Lake Mills, Wis.
Grosse, Benjamin Carl.....Elgin.
Grove, John Cell.....Chambersburg, Pa.
Gunther, Edward William.....LaSalle.
Hagan, James Harry.....Chicago.
Haider, Walter .....Beaver Dam, Wis.
Halfacre, Edward Joseph.....Columbia, Tenn.
Halperin, Louis Evan.....Chicago.
Hammar, Leonard Axel.....Chicago.
Heath, Charles Ford.....Chicago.
Heimsoth, Henry Christian John.....Havanna.
Herter, Henry Anthony.....Springfield.
Hibbe, Charles.....Chicago.
Hindman, Finis.....Herrin.
Howell, Julian Buhner.....DuQuoin.
Howly, John George.....LaCrosse, Wis.

Jenkins, William Laud.....Eastman, Ga.
Jodar, Louis Paul.....Plymouth, Wis.
Johnson, William Frederic.....Keithsburg.
Josenhans, Paul Reinhold.....Chicago.
Kehoe, John Carolan.....Waukegan.
King, Charles Aaron.....Chicago.
Knox, William Pierce.....Rensselaer, Ind.
Kobylanski, John Francis.....Chicago.
Konopa, Joseph Florian.....Chicago.
Koukalik, Albert.....Chicago.
Kowalski, Czeslaw Martin.....Chicago.
Kral, Fred Frank.....Chicago.
Kremer, Frank, Jr.....Chicago.
Krupicka, Joseph.....Chicago.
Leininger, Otto William.....Chicago.
Lindstrum, Charles Edward.....Chicago.
Liska, John Joseph.....Chicago.
Logan, Chester Arthur.....Elizabeth.
Lutz, Carl William.....Ottawa.
McDonnell, Philip Rodger.....Chicago.
McNamara, Thomas Joseph.....Ottawa.
Madison, Douglas Thompson.....West Chicago.
Marcotte, Adelard.....Kankakee.
Marks, Leon Arthur.....Cincinnati, O.
Matey, Charles.....Chicago.
Michalek, John Joseph.....Chicago.
Millen, Justus Townsend.....Springfield.
Moffat, Frederic Earle.....Park Ridge.
Montgomery, Grover Cleveland.....Birds.
Mori, Kinro.....Nagoya, Japan.
Moritz, John August.....Chicago.
Mrazek, Charles Joseph.....Chicago.
Mueller, John Fred.....Quincy.
Myerson, Edwin Sidney.....Chicago.
Nathan, David.....Chicago.
Naviaux, Albert Renny.....Lexington, Neb.
Niedzwiecki, Leo Joseph.....Chicago.
Nielson, Charles Frederick.....Chicago.
Niemeyer, Albert Philip.....Quincy.
Niesen, Theodore Bernard.....LaSalle.
Niggling, Martin.....Remsen, Ia.
Oberg, Clarence Julius.....Chicago.
Oberg, Oscar Carl.....Rock Island.
Ogg, Roy Roscoe.....Springfield.
O'Meara, William Aloysius.....Chicago.
Osborne, Thomas.....Chicago.
Parrella, Salvatore.....Chicago.

Pelikan, Edward Joseph.....Chicago.
Pellett, Walter John.....Manitowoc, Wis.
Pellettieri, Amedes.....Chicago.
Pellettieri, John.....Chicago.
Peska, Alexander Casimir.....Chicago.
Peters, Henry Onno.....Peoria.
Pisani, Vito.....Chicago.
Ploetz, William Ernst.....Sheyboygan, Wis.
Prentice, Samuel George.....Chicago.
Prominski, Victor Henry.....Chicago.
Rains, Ernest Kingdom.....Chicago.
Rambo, John Myron.....La Moille.
Ratajik, Felix James.....Chicago.
Rimsa, Jerry Edward.....Chicago.
Rosenbaum, Frank Albert.....Chicago.
Rosenstone, Rutherford Gustavus.....Cambridge.
Roth, Victor.....Chicago.
Rouleau, Francis Joseph.....Manteno.
Rummerfield, Larry Lewis.....Rockport, Mo.
Ruth, Grove Helmer.....Lakefield, Minn.
Sammarco, Nestore.....Chicago.
Savoie, Felice John.....Gilman.
Schereschewsky, Rudolph.....Chicago.
Schindel, Edmund.....Aurora.
Schmid, Rose Phillipus.....Chicago.
Schneider, John Henry.....Dubuque, Ia.
Schnitzler, Stephan.....Chicago.
Schroeder, Otto Albert.....Palatine.
Sherman, Lewis John.....Chicago.
Shpisman, Charles.....Chicago.
Sisk, John Edgar.....Marion.
Smith, Ellis Glen.....Bloomington.
Smith, Halley Ambrose.....Antioch.
Spencer, William Smith.....Chicago.
Staniforth, George F.....Chicago.
Starshak, Alphonse Leon.....Chicago.
Stein, Sigmund.....Chicago.
Streit, Joseph Clemence.....Chicago.
Stocks, Robert Harvey.....Chicago.
Stoeffhaas, Otto.....Chicago.
Strzoda, Robert Aloysius.....Chicago.
Stulik, Charles.....Chicago.
Sughrua, Thomas Joseph.....Chicago.
Talmage, Nathan.....Chicago.
Terrell, Edward.....Chicago.
Tetu, Frank Joseph.....Homer.
Thompson, Milton White.....Chicago.

Tomashek, Frank Edmund.....Joliet.
Trachman, Charles.....Ransom.
Transeau, William Ray.....Chicago.
Tremblay, Edward George.....Maywood.
Tugwell, Richard John, Jr.....Chicago.
Turalski, Walter Joseph.....Chicago.
Tyrell Frank Joseph.....Chicago.
Underriner, Harry Aloys.....Effingham.
Van Dusen, Richard.....Allegan, Mich.
Vesely, Anton Victor.....Chicago.
Voss, George Kimmel.....DuQuoin.
Wall, Warren Aurand.....Elkhart, Ind.
Walter, Charles Elmer.....Aledo.
Waterman, Ben Colby.....Kilburn City, Wis.
Watson, Daniel Clark.....St. George, Utah.
Webb, Thomas Edward.....Warren, O.
Webster, Claude Augustine.....Benton.
Wendt, John Frederick.....Huntley.
Wenigman, Paul, Jr.....Chicago.
Wester, Gustav Adolph.....Chicago.
Wheeler, Roy.....Chicago.
Wiehn, John William.....Westchester, N. Y.
Williamson, Melville Enoch.....Chicago.
Winborn, Elmer Norris.....Detroit, Mich.
Woltersdorf, Oscar.....Chicago.
Zito, Rocco.....Chicago.
Zur, Victor Edward.....Chicago.

SPECIALS.

Cassin, Elmer Eldorado, Ph. G., 1907.....Ogden, Utah.
Long, Simeon Earl.....Fulton.

COURSE FOR PHARMACEUTICAL CHEMIST.

Brown, Charles Wesley.....Ruthville, Va.
Gunning, DeLancy Thomas.....Wilmington.
Johnston, John Lynch.....Chicago.
Valentine, Clarence Leslie.....Aurora.
Venn, Henry Leonard, A. B. (St. Ignatius College), 1906.....Chicago.
Zimmermann, Clarence.....Peoria.

College of Physicians and Surgeons

OF CHICAGO

COLLEGE OF MEDICINE

OF THE

UNIVERSITY OF ILLINOIS

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